Dell Precision™ WorkStation 330 Systems Service Manual

Initial release: 16 Nov 2000

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AGP Card Brace (Mini Tower Chassis Only)

Dell Precision™ WorkStation 330 Systems Service Manual

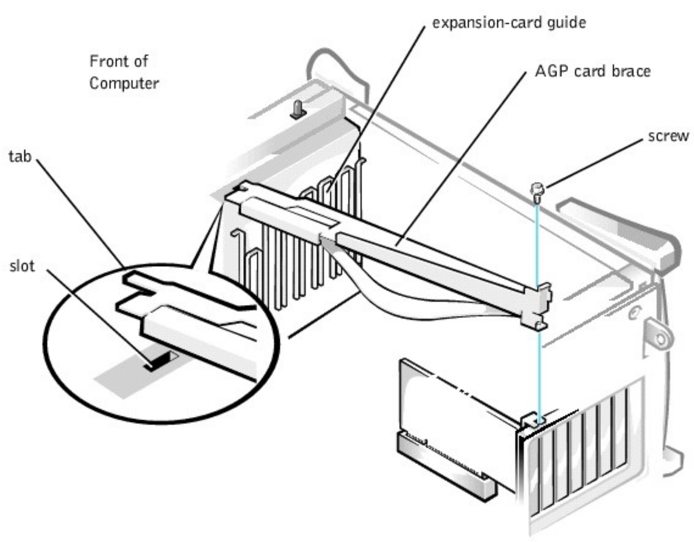
Removing the AGP Card Brace

To access some components on the system board in the mini tower chassis, you may need to remove the accelerated graphics port (AGP) card brace.

⚠ **CAUTION: Before you perform this procedure, see "Precautionary Measures."**

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Lay the computer down on its right side.
3. Remove the screw that secures the AGP card brace to the chassis (see the following figure).

Removing the AGP Card Brace (Mini Tower Chassis)



4. Rotate the brace up until it disengages from the card guide at the front of the chassis. Then lift the brace away from the chassis.

Replacing the AGP Card Brace

To replace the AGP card brace, perform the removal procedure in reverse.

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System Battery

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Removing the System Battery

CAUTION: There is a danger of the new battery exploding if it is installed incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: Before you perform this procedure, see "Precautionary Measures."

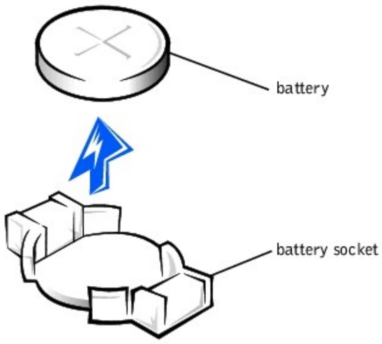
NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the battery.

   To locate the battery on the system board, see "System Board Components" or "Interior Service Label."

   Pry the battery out of its socket with your fingers or with a blunt, nonconductive object, such as a plastic screwdriver.

Removing the System Battery



Replacing the System Battery

1. Install the new battery.

   Orient the battery with the side labeled "+" facing up (see "Removing the System Battery"). Then insert the battery into the socket, and snap it into place.
2. Replace the computer cover and restart the system.
3. Enter system setup and enter the current time and date. Then exit system setup and save the information.

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Before You Begin

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Precautionary Measures

Before you remove the computer cover, perform the following steps in the sequence indicated.

1. Turn off your computer and any peripherals.

2. Disconnect your computer and peripherals from their power sources. Also, disconnect any telephone or telecommunication lines from the computer.

   Doing so reduces the potential for personal injury or shock.

3. If you are disconnecting a peripheral from the computer or are removing a component from the system board, wait 10 to 20 seconds after disconnecting the computer from AC power before disconnecting the peripheral or removing the component to avoid possible damage to the system board.

4. Wear a wrist grounding strap, and clip it to an unpainted metal surface, such as the padlock loop on the back of the chassis. If a wrist grounding strap is not available, touch any unpainted metal surface on the back of the computer or on the computer chassis, such as the power supply, to discharge any static charge from your body before touching anything inside the computer. While you work, periodically touch an unpainted metal surface on the computer chassis to dissipate any static electricity that might harm internal components. Also avoid touching components or contacts on a card and avoid touching pins on a chip.

5. Verify that the standby power indicator on the system board is not on. If it is on, you may need to wait 10 to 30 seconds for it to go out. To locate this indicator, see "System Board Components" or "Interior Service Label."

Recommended Tools

Some of the procedures in this document require the use of a #2 Phillips-head screwdriver.

Also, use a wrist grounding strap as explained in "Precautionary Measures."

Restarting the System

1. Replace the computer cover, reconnect the computer and peripherals to their electrical outlets, and turn them on.

   NOTE: If enabled, the **Chassis Intrusion** option will cause the following message to be displayed at the next system start-up:

   ```
   ALERT! Cover was previously removed.
   ```

2. To reset the **Chassis Intrusion** option, enter system setup, select the **System Security** option, and reset the **Chassis Intrusion** option to **Enabled** or **Enabled Silent**.

   NOTE: When the setup password is enabled, you must know the setup password before you can reset the Chassis Intrusion option.

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Chassis Intrusion Switch

Dell Precision™ WorkStation 330 Systems Service Manual

- Desktop Chassis
- Mini Tower Chassis

Desktop Chassis

- Removing the chassis intrusion switch
- Replacing the chassis intrusion switch

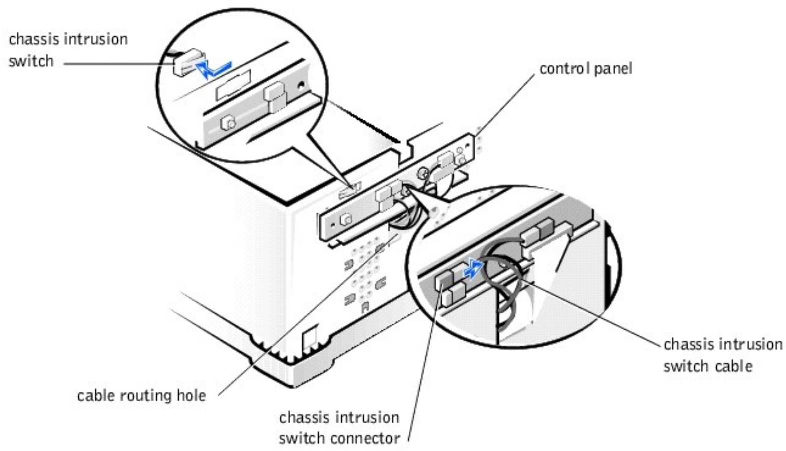
Removing the Chassis Intrusion Switch (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the hard-drive bracket.
3. Remove all expansion cards.
4. Remove the expansion-card guide.
5. Disconnect the chassis intrusion switch cable from the control-panel connector (ALERT). To locate this connector, see "Control Panel Components."
6. Feed the chassis intrusion switch cable through the routing hole in the front wall of the chassis (see the following figure).
7. From inside the chassis, slide the chassis intrusion switch toward the left side wall of the chassis to release it from the chassis.
8. Lift the chassis intrusion switch and switch cable away from the chassis.

Removing the Chassis Intrusion Switch (Desktop Chassis)



Replacing the Chassis Intrusion Switch (Desktop Chassis)

NOTE: When mounting the chassis intrusion switch in the clip in the front wall of the chassis, ensure that the sensor cable is oriented toward the left side wall of the chassis.

To replace the chassis intrusion switch, perform the removal procedure in reverse.

Mini Tower Chassis

- Removing the chassis intrusion switch
- Replacing the chassis intrusion switch

Removing the Chassis Intrusion Switch (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

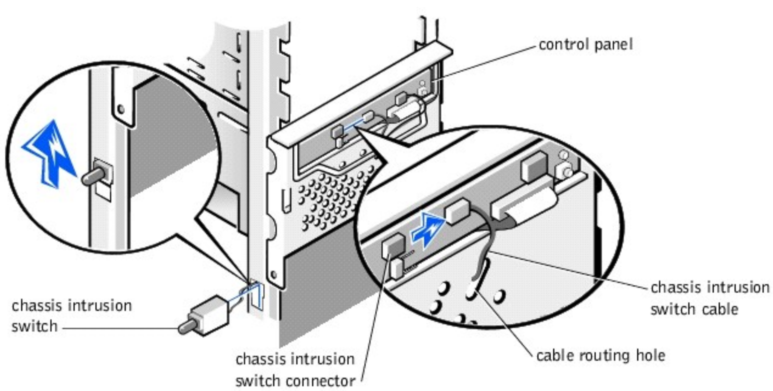
NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the front panel.
3. Remove the AGP card brace.
4. Remove all expansion cards.
5. Remove the expansion-card guide.
6. Disconnect the chassis intrusion switch cable from the control-panel connector (ALERT). To locate this connector, see "Control Panel Components."
7. Feed the chassis intrusion switch cable through the routing holes in the drive door and the front wall of the chassis (see the following figure).

   NOTE: You must open the drive door to feed the chassis intrusion switch cable through the cable routing holes. The switch cable routes through an enlarged hole in the front chassis wall and through a hole in the drive door.

8. Slide the chassis intrusion switch up out of its slot on the left side of the chassis.
9. Lift the chassis intrusion switch and switch cable away from the chassis.

Removing the Chassis Intrusion Switch (Mini Tower Chassis)



Replacing the Chassis Intrusion Switch (Mini Tower Chassis)

To replace the chassis intrusion switch, perform the removal procedure in reverse.

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Control Panel

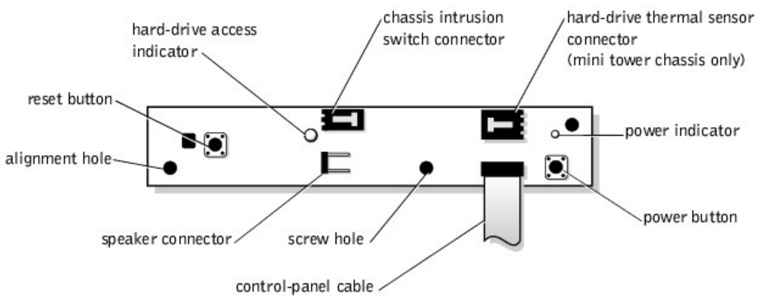
Dell Precision™ WorkStation 330 Systems Service Manual

- [Components](#)
- [Desktop Chassis](#)
- [Mini Tower Chassis](#)

Components

The following figure shows the control panel and the location of its principal connectors and components.

Control Panel Components



Desktop Chassis

- [Removing the control panel](#)
- [Replacing the control panel](#)

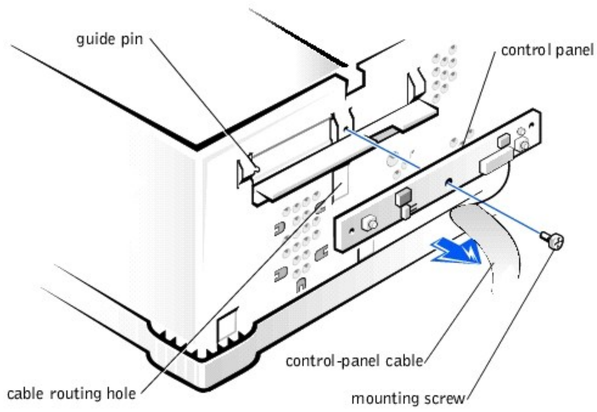
Removing the Control Panel (Desktop Chassis)

CAUTION: Before you perform this procedure, see "[Precautionary Measures](#)."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "[System Board Components](#)" or "[Interior Service Label](#)."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then [remove the computer cover](#).
2. [Remove the hard-drive bracket](#).
3. [Remove all expansion cards](#).
4. [Remove the expansion-card guide](#).
5. Disconnect the control-panel cable from the control-panel (PANEL) connector on the system board. To locate the control-panel connector, see "[System Board Components](#)" or "[Interior Service Label](#)."
6. Feed the control-panel ribbon cable through the routing holes in the bottom and front wall of the chassis.
7. Disconnect the speaker and chassis intrusion switch cables from the control-panel connectors. To locate these connectors, see "[Control Panel Components](#)."
8. Remove the mounting screw.
9. Lift the control panel and control-panel ribbon cable away from the chassis.

Removing the Control Panel (Desktop Chassis)



Replacing the Control Panel (Desktop Chassis)

NOTE: When mounting the control panel on the chassis, ensure that the control-panel alignment hole is positioned over the guide pin. See "Removing the Control Panel (Desktop Chassis)."

To replace the control panel, perform the removal procedure in reverse.

Mini Tower Chassis

- Removing the control panel
- Replacing the control panel

Removing the Control Panel (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

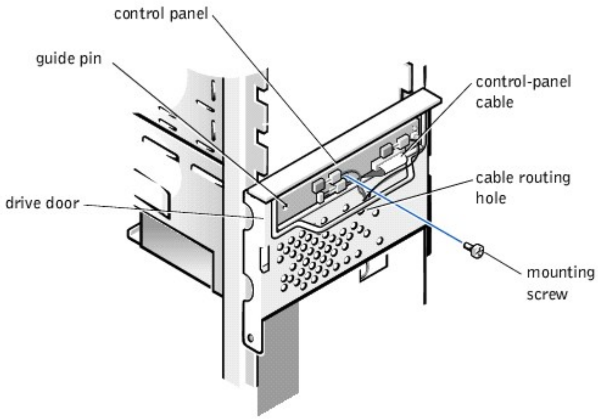
NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the front panel.
3. Remove the AGP card brace.
4. Remove all expansion cards.
5. Remove the expansion-card guide.
6. Disconnect the control-panel cable from the control-panel (PANEL) connector on the system board. To locate the control-panel connector, see "System Board Components" or "Interior Service Label."
7. Feed the control-panel ribbon cable through the routing holes in the bottom and front wall of the chassis.

   NOTE: You must open the drive door and free the control-panel cable from the clasp on the drive door.

8. Disconnect the speaker and chassis intrusion switch cables from the control-panel connectors. To locate these connectors, see "Control Panel Components."
9. Remove the mounting screw.
10. Lift the control panel and control-panel ribbon cable away from the chassis.

Removing the Control Panel (Mini Tower Chassis)



Replacing the Control Panel (Mini Tower Chassis)

NOTE: When mounting the control panel on the drive door, Ensure that the control-panel alignment hole is positioned over the guide pin. See "Removing the Control Panel (Mini Tower Chassis)."

To replace the control panel, perform the removal procedure in reverse.

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Computer Cover

Dell Precision™ WorkStation 330 Systems Service Manual

- Desktop Chassis
- Mini Tower Chassis

Desktop Chassis

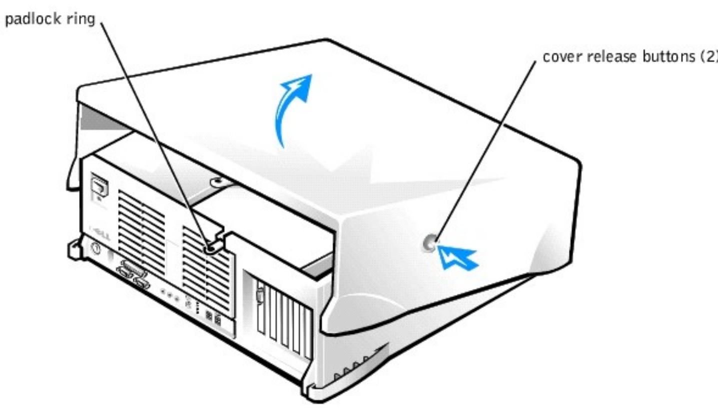
- Removing the computer cover
- Replacing the computer cover

Removing the Computer Cover (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

1. Turn off the computer and peripherals, and disconnect them from their electrical outlets.
2. If installed, remove the padlock from the padlock ring on the back panel.
3. Remove the computer cover.
   a. Press the two cover release buttons located on the left and right sides of the cover (see the following figure).
   b. Rotate the back of the cover upward, away from the chassis.

Removing the Cover (Desktop Chassis)

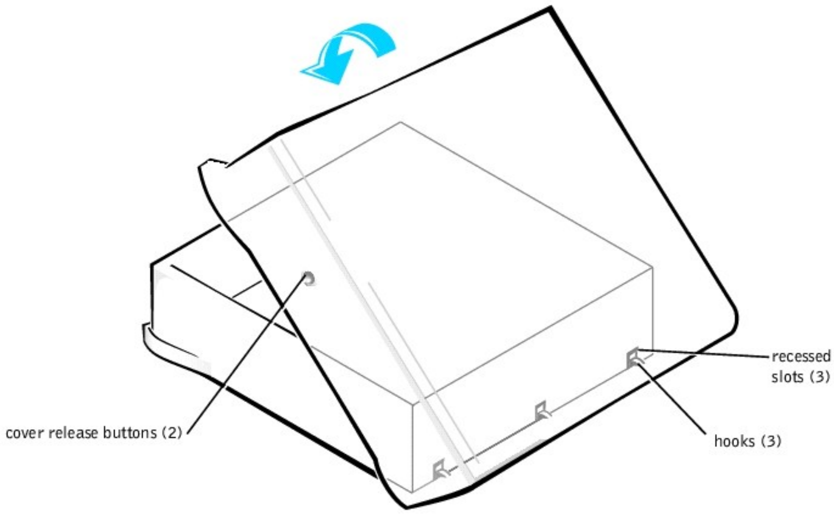


   c. Lift the cover away from the chassis.

Replacing the Computer Cover (Desktop Chassis)

1. Check all cable connections and fold cables out of the way so that they do not catch on the computer cover. Ensure that cables are not routed over the drive cage—they will prevent the cover from closing properly.
2. Ensure that no tools or extra parts (including screws) are left inside the computer chassis.
3. Replace the computer cover.
   a. Hold the cover at a slight angle as shown in the following figure.
   b. Fit the three cover hooks into the recessed slots at the bottom of chassis. (It might be helpful to look down into the chassis to verify that the hooks are in place.)
   c. Rotate the cover downward and into position. Ensure that the two cover release buttons click into place.

Replacing the Cover (Desktop Chassis)



Mini Tower Chassis

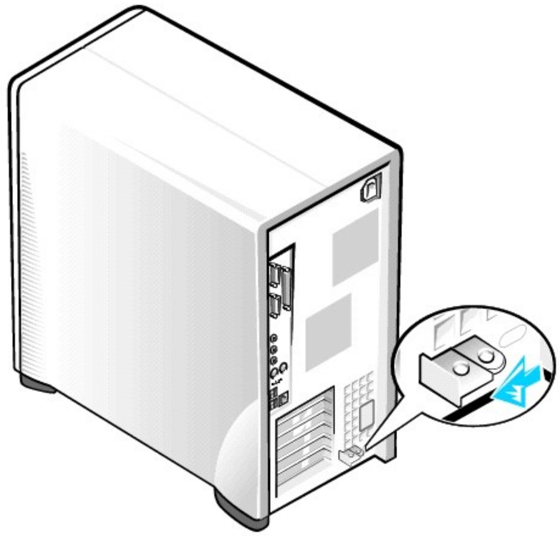
- Removing the computer cover
- Replacing the computer cover

Removing the Computer Cover (Mini Tower Chassis)

⚠ **CAUTION: Before you perform this procedure, see "Precautionary Measures."**

1. Turn off the computer and peripherals, and disconnect them from their electrical outlets.
2. If installed, remove the padlock from the padlock ring on the back panel.
3. Remove the computer cover.
   a. Face the back of the computer and slide the outer padlock ring to the left to unlock the cover release mechanism (see the following figure).

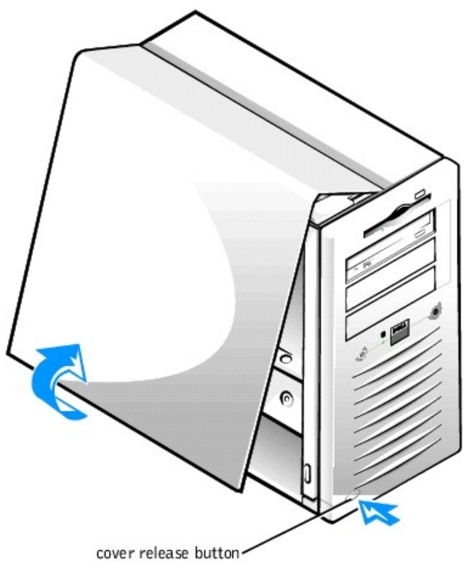
Cover Release Mechanism (Mini Tower Chassis)



b. Press the cover release button located at the bottom-left corner of the front panel (see the following figure).

c. Rotate the bottom of the cover outward, away from the chassis.

Removing the Cover (Mini Tower Chassis)



d. Lift the cover away from the chassis.

e. Lay the computer down on its right side before you begin working inside the chassis.

Replacing the Computer Cover (Mini Tower Chassis)

1. Check all cable connections and fold cables out of the way so that they do not catch on the computer cover. Ensure that cables are not routed over the drive cage—they will prevent the cover from closing properly.

2. Ensure that no tools or extra parts (including screws) are left inside the computer chassis.

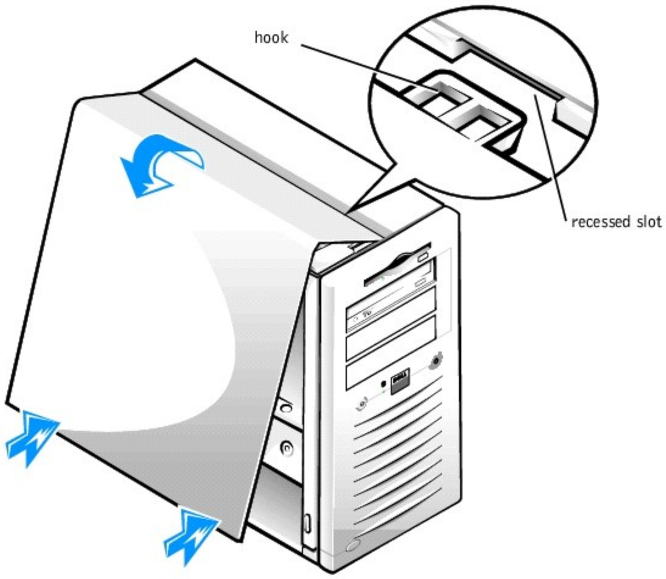
3. Replace the computer cover.

    a. Hold the cover at a slight angle as shown in the following figure. While aligning the top of the cover with the top of the chassis, insert the three hooks on

the cover into the three recessed slots on the computer chassis.

b. Rotate the cover downward toward the bottom of the chassis. With both hands, press against the bottom edge of the cover to ensure that the securing hooks at the bottom of the cover click into place.

Replacing the Cover (Mini Tower Chassis)



c. Slide the two parts of the padlock ring together to lock the cover release mechanism.

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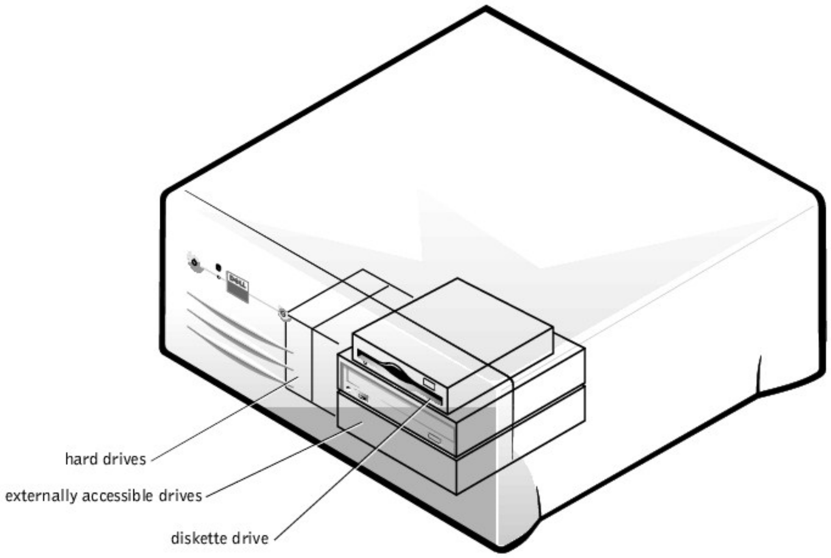
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Disk Drives and Media

Dell Precision™ WorkStation 330 Systems Service Manual

Desktop Chassis

Drive Locations (Desktop Chassis)



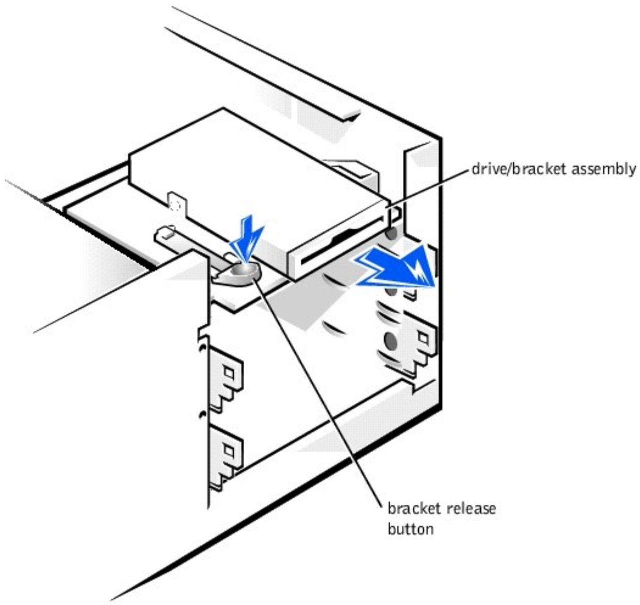
Removing the Diskette Drive (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Rotate the power supply away from the system board.
3. Disconnect the DC power and interface cables from the back of the drive.
4. Press the green diskette-drive bracket release button and slide the drive assembly out of the chassis (see the following figure).

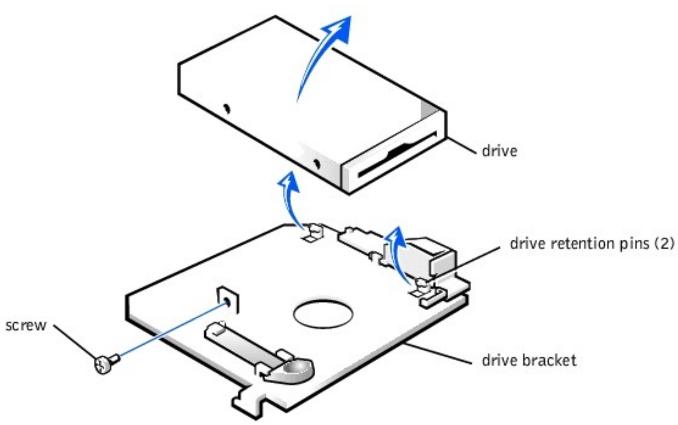
Removing the Diskette-Drive Bracket (Desktop Chassis)



5. Remove the mounting screw.

6. Rotate the left side of the diskette drive upward and lift it free from the drive bracket (see the following figure).

Removing the Diskette Drive from the Bracket (Desktop Chassis)



Replacing the Diskette Drive (Desktop Chassis)

1. Mount the diskette drive on the bracket:

   a. Lower the right side of the diskette drive onto the bracket, inserting the drive retention pins into the screw holes on the drive. See "Removing the Diskette Drive from the Bracket (Desktop Chassis)."

   b. Lower the left side of the diskette drive downward and secure it to the bracket with the screw you removed in step 5 of "Removing the Diskette Drive (Desktop Chassis)."

2. Slide the drive assembly into the chassis until the green diskette-drive bracket release button snaps securely into place. See "Removing the Diskette-Drive Bracket (Desktop Chassis)."

3. Connect the interface cable for the drive. To locate this connector, see "System Board Components" or "Interior Service Label."

NOTICE: To avoid possible damage, you must match the colored strip on the interface cable with pin 1 on both the drive and system board connectors.

4. Connect a DC power cable to the power input connector on the back of the drive.

5. Ensure that all cables are firmly connected. Fold cables out of the way to provide airflow for the fan and cooling vents.

6. Rotate the power supply back into position until the securing tab snaps into the release latch.

7. Replace the computer cover and restart the system.

8. Run the Dell Diagnostics to verify that the drive is operating properly.

Removing a CD, Zip, or Other Externally Accessible Drive (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.

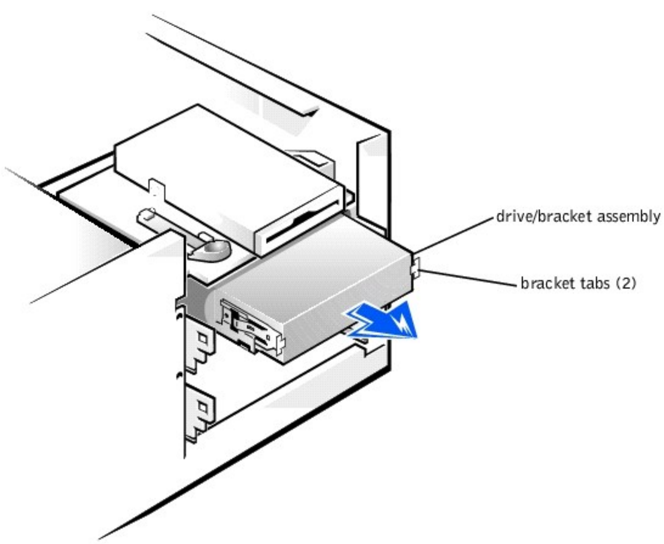
2. Rotate the power supply away from the system board.

3. Disconnect the DC power and interface cables from the back of the drive.

4. Remove the drive bracket from the chassis drive bay you want to use.

   Squeeze together the metal tabs that extend from each side of the drive bracket, and pull the bracket out of the bay (see the following figure).

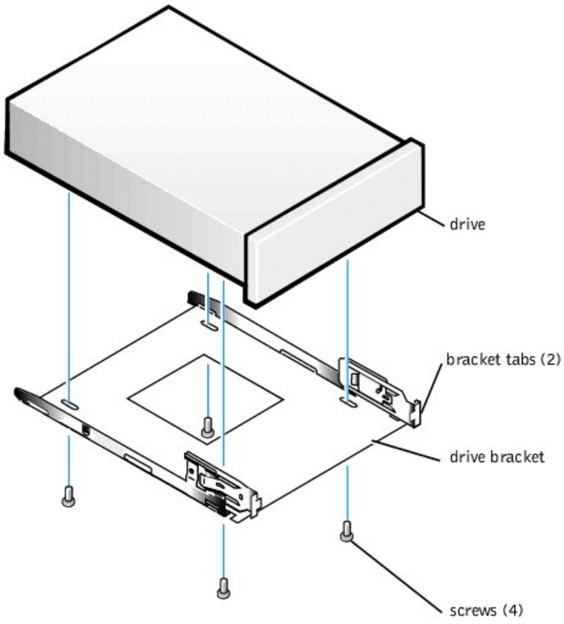
Removing a Drive Bracket (Desktop Chassis)



5. Remove the drive from the bracket.

   Turn the drive/bracket assembly upside down and remove the four screws that secure the drive to the bracket (see the following figure).

Removing the Drive from the Bracket



Replacing a CD, Zip, or Other Externally Accessible Drive (Desktop Chassis)

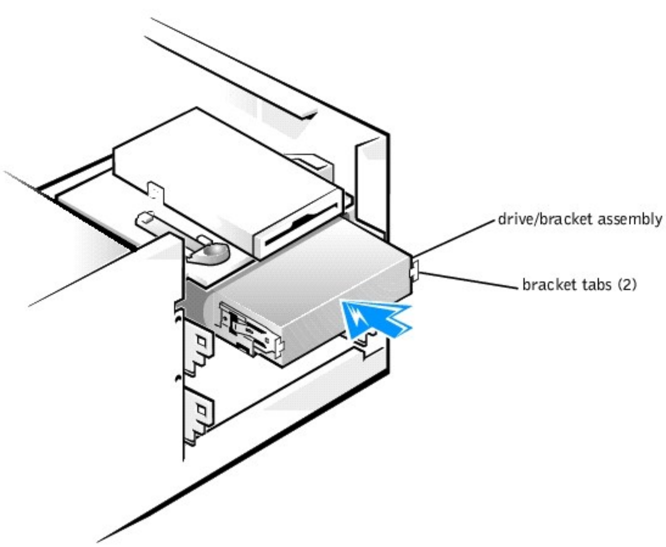
1. Attach the new drive to the drive bracket.

   Turn the drive upside down, and fit the bracket on the drive so that the screw holes align. To ensure proper installation, all screw holes should be aligned and the tabs on the front of the bracket should be flush with the front of the drive (see "Removing the Drive from the Bracket").

   To further ensure proper positioning of the drive in the chassis, insert and tighten all four screws *in the order in which the holes are numbered* (the holes are marked "1" through "4").

2. Slide the new drive/bracket assembly into the drive bay until both drive bracket tabs snap securely into place (see the following figure).

Installing the Drive Bracket (Desktop Chassis)



3. Connect the interface cable for the drive. See "Attaching Drive Cables (Desktop Chassis)."

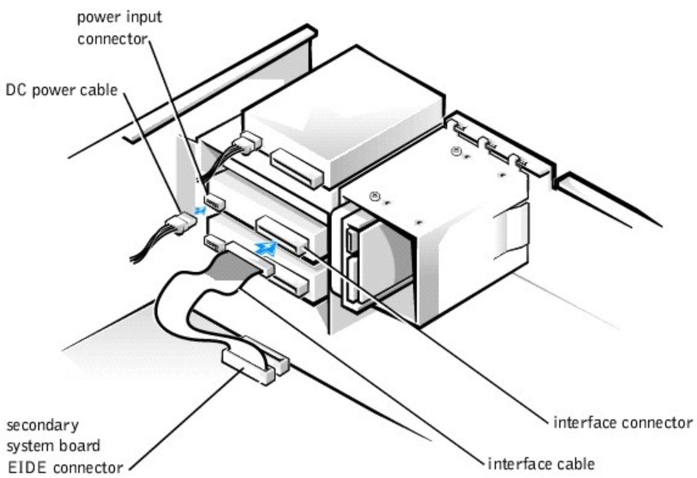
NOTICE: To avoid possible damage, you must match the colored strip on the interface cable with pin 1 on both the drive and system board connectors.

a. If you are installing an EIDE device, ensure that the interface cable is properly connected to the EIDE connector on the system board.

b. If you are installing a SCSI device, ensure that the SCSI interface cable is properly connected to the interface connector on the SCSI controller board.

4. Connect a DC power cable to the power input connector on the back of the drive (see the following figure).

Attaching Drive Cables (Desktop Chassis)



5. Ensure that all cables are firmly connected. Fold cables out of the way to provide airflow for the fan and cooling vents.

6. If the chassis drive bay was previously empty, remove the corresponding insert from the computer cover.

   Hold the cover with the outside facing you. Press the ends of the insert with your thumbs until the insert snaps free of the cover.

7. Rotate the power supply back into position until the securing tab snaps into the release latch.

8. Replace the computer cover and restart the system.

9. If the drive you installed is a hard drive, enter system setup, and update the drive settings.

   After you update the system settings, exit system setup and reboot the computer.

10. If the device you installed is a hard drive, partition and logically format the drive before proceeding to the next step.

    See the operating system's documentation for instructions.

11. Test the drive to verify that it is operating properly.

    - If the drive you installed is a hard drive, run the Dell Diagnostics to test the drive.
    - For other types of drives, see the drive's documentation for information on testing the drive.

12. If the drive you installed is the primary hard drive, install the operating system on the drive.

    See the operating system's documentation for instructions.

    NOTE: Tape drives sold by Dell come with their own operating software and documentation. After you install a tape drive, refer to the documentation that came with the drive for instructions on installing and using the tape drive software.

Removing a Hard Drive (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.

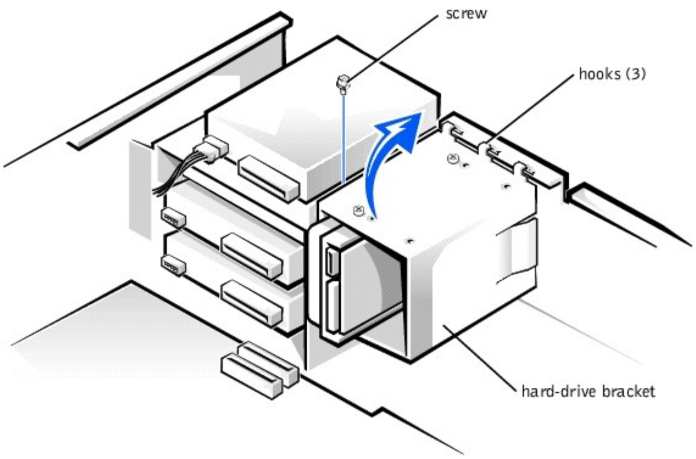
2. Rotate the power supply away from the system board.

3. Disconnect the DC power and interface cables from the back of the drive.

4. Remove the drive bracket from the chassis.

   Remove the screw holding the drive bracket in the chassis. Lift the drive bracket up to disengage it from the latch on the externally accessible drive bay and the three hooks on the front of the chassis (see the following figure).

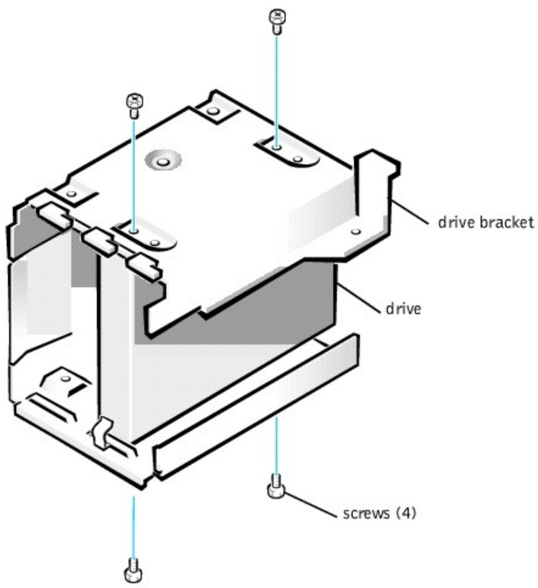
Removing the Hard-Drive Bracket (Desktop Chassis)



5. Remove the four screws that secure the drive in the bracket (see the following figure).

6. Remove the old drive from the bracket

Removing a Hard Drive from the Bracket (Desktop Chassis)



Replacing a Hard Drive (Desktop Chassis)

1. Slide the drive into one of bracket bays, oriented so that the connectors on the back of the drive will face the interior of the chassis when the bracket is reinstalled.

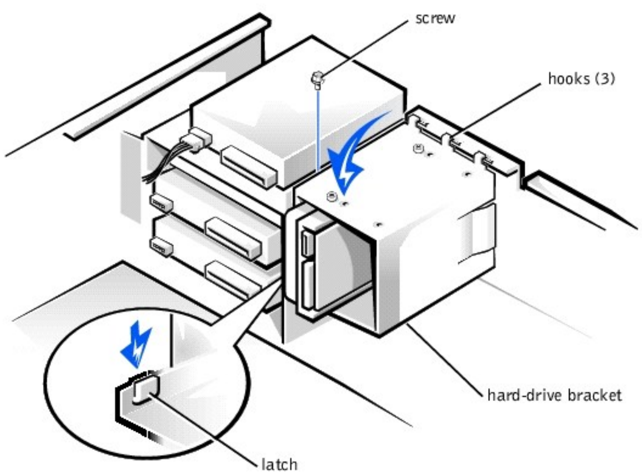
   NOTE: Orient the drive in the bracket so that its bottom will face the left side of the chassis when the bracket is installed in the chassis.

2. Align the screw holes of the drive and bracket, and secure the drive in the bracket using the screws that came with the upgrade kit. See "Removing a Hard Drive from the Bracket (Desktop Chassis)."

3. Reinstall the hard-drive bracket in the chassis (see the following figure).

   Insert the bracket into the chassis by inserting the hooks in the slots on the front of the chassis. Then lower the bracket to the bottom of the chassis, making sure that the latch on the externally accessible drive bay is engaged. Replace the screw holding the drive bracket to the drive bay.

Installing the Hard-Drive Bracket (Desktop Chassis)



4. Connect the interface cable for the drive. See "Attaching Hard-Drive Cables (Desktop Chassis)."

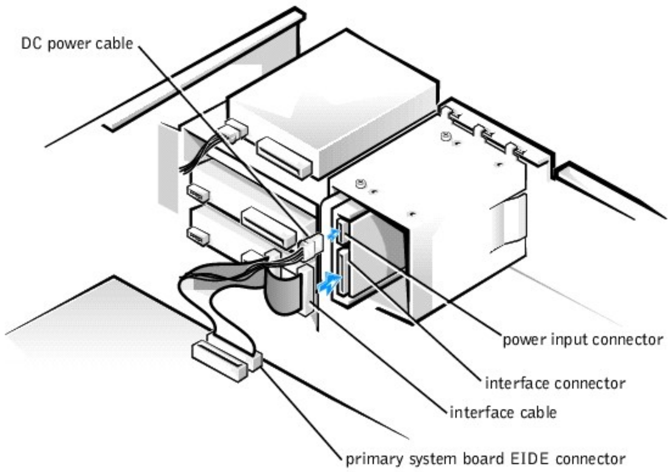
NOTICE: To avoid possible damage, you must match the colored strip on the interface cable with pin 1 on both the drive and system board connectors.

   a. If you are installing an EIDE device, ensure that the IDE interface cable is properly connected to the EIDE connector on the system board.

   b. If you are installing a SCSI device, ensure that the SCSI interface cable is properly connected to the interface connector on the SCSI controller board.

5. Connect a DC power cable to the power input connector on the back of the drive (see the following figure).

Attaching Hard-Drive Cables (Desktop Chassis)



6. Ensure that all cables are firmly connected. Fold cables out of the way to provide airflow for the fan and cooling vents.
7. Ensure that the control panel cable is firmly connected to the system board.

   The control panel contains the hard-drive activity indicator. To locate the control panel system board connector, see "System Board Components" or "Interior Service Label."

8. Rotate the power supply back into position until the securing tab snaps into the release latch.
9. Replace the computer cover and restart the system.
10. Enter system setup, and update the drive settings.

    After you update the system settings, exit system setup and reboot the computer.

11. Partition and logically format the drive before proceeding to the next step.

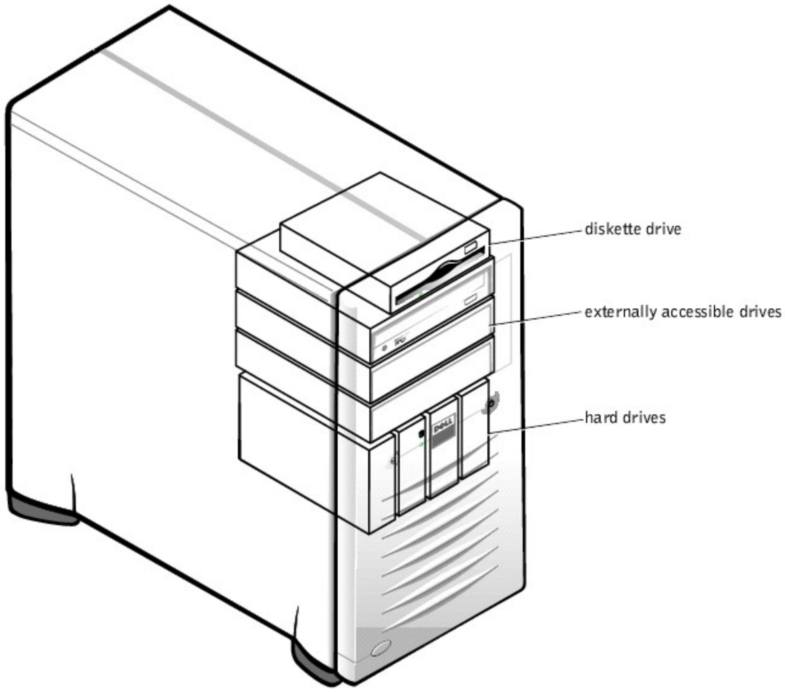
    See the operating system's documentation for instructions.

12. Run the Dell Diagnostics to test the drive.
13. If the hard drive you installed is the primary drive, install the operating system on the drive.

    See the operating system's documentation for instructions.

Mini Tower Chassis

Drive Locations (Mini Tower Chassis)



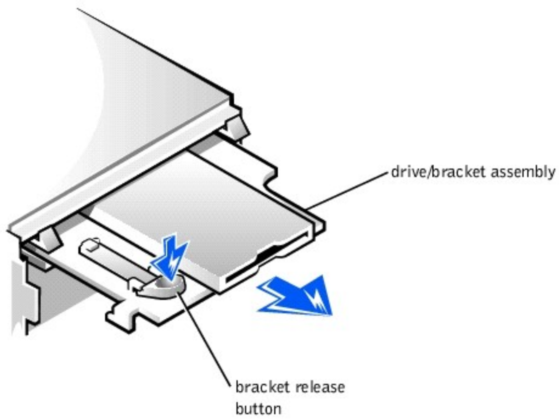
Removing the Diskette Drive (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Rotate the power supply away from the system board.
3. Remove the front panel.
4. Disconnect the DC power and interface cables from the back of the drive.
5. Press the green diskette-drive bracket release button and slide the drive assembly out of the chassis (see the following figure).

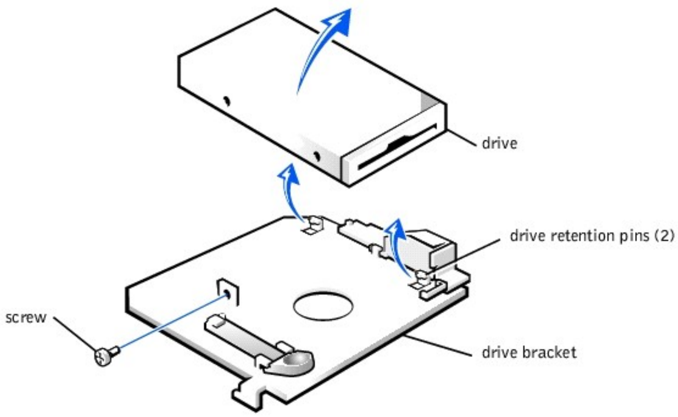
Removing the Diskette-Drive Bracket (Mini Tower Chassis)



6. Remove the mounting screw.

7. Rotate the left side of the diskette drive upward and lift it free from the drive bracket (see the following figure).

Removing the Diskette Drive from the Bracket (Mini Tower Chassis)



Replacing the Diskette Drive (Mini Tower Chassis)

1. Mount the diskette drive on the bracket:

   a. Lower the right side of the diskette drive onto the bracket, inserting the drive retention pins into the screw holes on the drive. See "Removing the Diskette Drive from the Bracket (Mini Tower Chassis)."

   b. Lower the left side of the diskette drive downward and secure it to the bracket with the screw you removed in step 6 of "Removing the Diskette Drive (Mini Tower Chassis)."

2. Slide the drive assembly into the chassis until the green diskette-drive bracket release button snaps securely into place. See "Removing the Diskette-Drive Bracket (Mini Tower Chassis)."

3. Connect the interface cable for the drive. To locate this connector, see "System Board Components" or "Interior Service Label."

NOTICE: To avoid possible damage, you must match the colored strip on the interface cable with pin 1 on both the drive and system board connectors.

4. Connect a DC power cable to the power input connector on the back of the drive.

5. Ensure that all cables are firmly connected. Fold cables out of the way to provide airflow for the fan and cooling vents.

6. Rotate the power supply back into position until the securing tab snaps into the release latch.

7. Replace the computer cover and restart the system.

8. Run the Dell Diagnostics to verify that the drive is operating properly.

Removing a CD, Zip, or Other Externally Accessible Drive (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.

2. Rotate the power supply away from the system board.

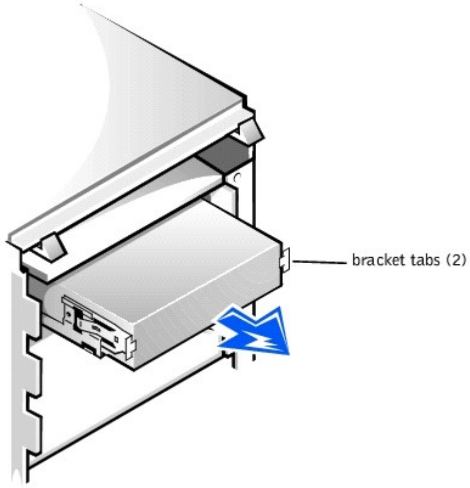
3. Remove the front panel.

4. Disconnect the DC power and interface cables from the back of the drive.

5. Remove the drive bracket from the chassis drive bay you want to use.

   Squeeze together the metal tabs that extend from each side of the drive bracket, and pull the bracket out of the bay (see the following figure).

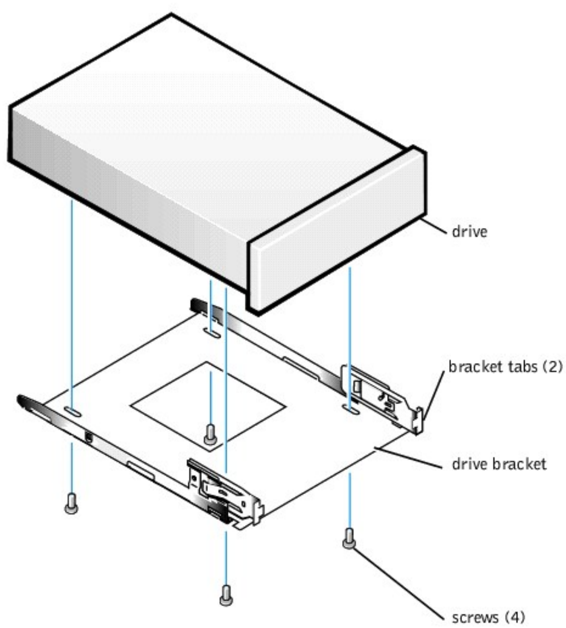
Removing a Drive Bracket (Mini Tower Chassis)



6. Remove the drive from the bracket.

   Turn the drive/bracket assembly upside down and remove the four screws that secure the drive to the bracket (see the following figure).

Removing the Drive from the Bracket



Replacing a CD, Zip, or Other Externally Accessible Drive (Mini Tower Chassis)

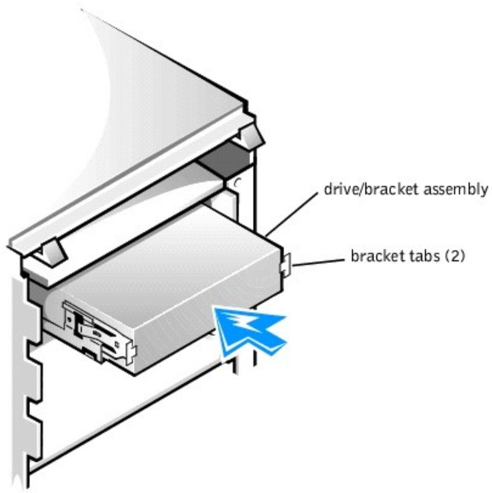
1. Attach the new drive to the drive bracket.

   Turn the drive upside down, and fit the bracket on the drive so that the screw holes align. To ensure proper installation, all screw holes should be aligned and the tabs on the front of the bracket should be flush with the front of the drive (see "Removing the Drive from the Bracket").

   To further ensure proper positioning of the drive in the chassis, insert and tighten all four screws *in the order in which the holes are numbered* (the holes are marked "1" through "4").

2. Slide the new drive/bracket assembly into the drive bay until both drive bracket tabs snap securely into place (see the following figure).

Installing the Drive Bracket (Mini Tower Chassis)



3. Connect the interface cable for the drive. See "[Attaching Drive Cables (Mini Tower Chassis)](#)."

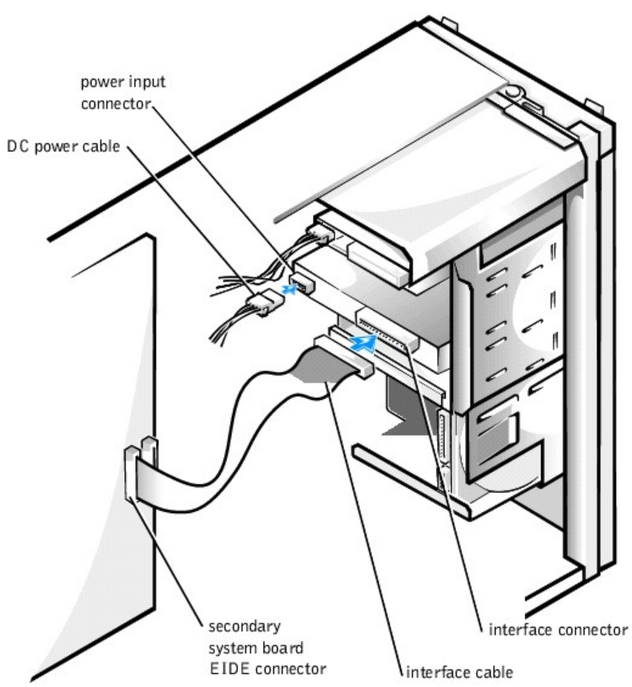
NOTICE: To avoid possible damage, you must match the colored strip on the interface cable with pin 1 on both the drive and system board connectors.

   a. If you are installing an EIDE device, ensure that the interface cable is properly connected to the EIDE connector on the system board.

   b. If you are installing a SCSI device, ensure that the SCSI interface cable is properly connected to the interface connector on the SCSI controller board.

4. Connect a DC power cable to the power input connector on the back of the drive (see the following figure).

Attaching Drive Cables (Mini Tower Chassis)



5. Ensure that all cables are firmly connected. Fold cables out of the way to provide airflow for the fan and cooling vents.
6. If the chassis drive bay was previously empty, remove the corresponding insert from the front panel.

   Hold the front panel with the outside facing you. Press the ends of the insert with your thumbs until the insert snaps free of the front panel.
7. Replace the front panel.
8. Rotate the power supply back into position until the securing tab snaps into the release latch.
9. Replace the computer cover and restart the system.
10. If the drive you installed is a hard drive, enter system setup, and update the drive settings.

    After you update the system settings, exit system setup and reboot the computer.
11. If the device you installed is a hard drive, partition and logically format the drive before proceeding to the next step.

    See the operating system's documentation for instructions.
12. Test the drive to verify that it is operating properly.
    - If the drive you installed is a hard drive, run the Dell Diagnostics to test the drive.
    - For other types of drives, see the drive's documentation for information on testing the drive.
13. If the drive you installed is the primary hard drive, install the operating system on the drive.

    See the operating system's documentation for instructions.

NOTE: Tape drives sold by Dell come with their own operating software and documentation. After you install a tape drive, refer to the documentation that came with the drive for instructions on installing and using the tape drive software.

Removing a Hard Drive (Mini Tower Chassis)

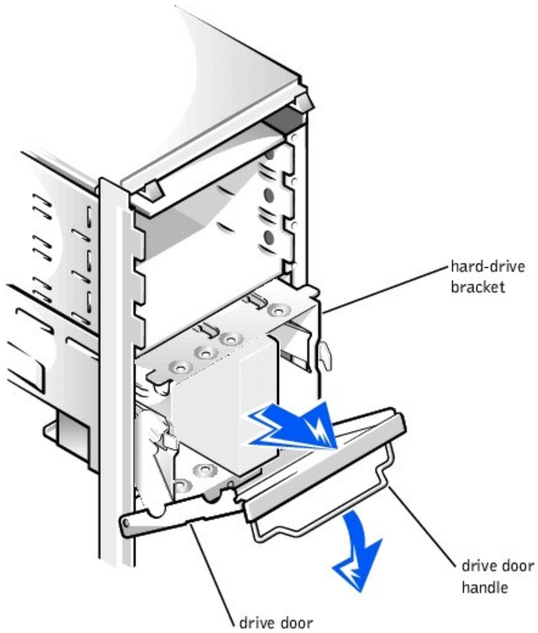
CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Rotate the power supply away from the system board.
3. Remove the front panel.
4. Disconnect the DC power and interface cables from the back of the drive.
5. Remove the drive bracket from the chassis.

   Pull the drive door forward and down until the hard-drive bracket is ejected halfway out of the chassis (see the following figure). Then grasp the bracket and pull it completely out of the chassis.

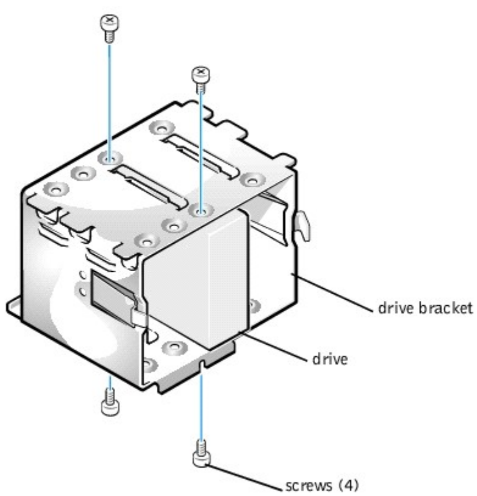
Removing the Hard-Drive Bracket (Mini Tower Chassis)



6. Remove the four screws that secure the drive in the bracket (see the following figure).

7. Remove the drive from the bracket

Removing a Hard Drive from the Bracket (Mini Tower Chassis)



Replacing a Hard Drive (Mini Tower Chassis)

1. Slide the drive into one of bracket bays, oriented so that the connectors on the back of the drive will face the interior of the chassis when the bracket is reinstalled. See "Removing a Hard Drive from the Bracket (Mini Tower Chassis)."

   NOTE: Orient the drive in the bracket so that its bottom will face the left side of the chassis when the bracket is installed in the chassis.

2. Align the screw holes of the drive and bracket, and secure the drive in the bracket using the screws that came with the upgrade kit.

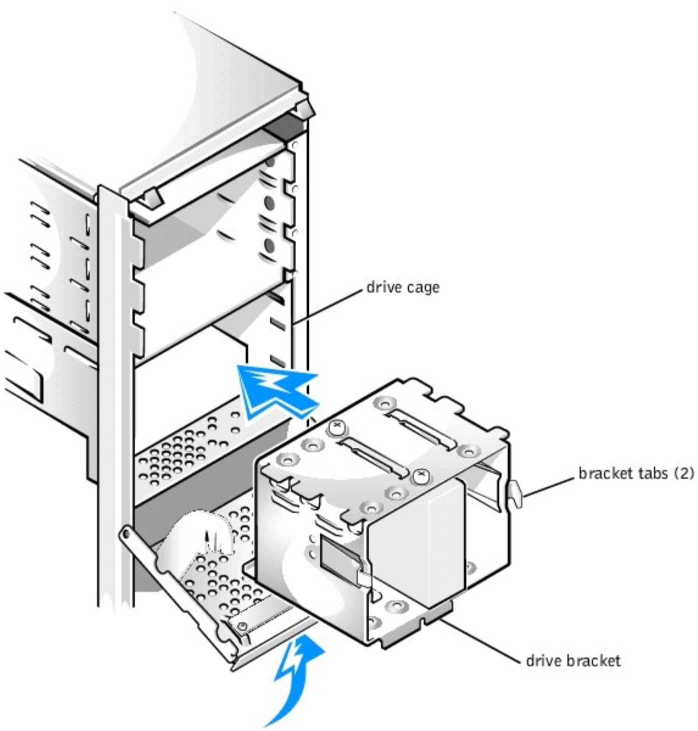
3. Reinstall the hard-drive bracket in the chassis (see the following figure).

   Insert the drive bracket into the chassis, sliding it in until the tabs snap into place. Rotate the drive door upward to the chassis until it snaps securely into place.

NOTE: When you rotate the drive door back into place, ensure that the tabs on the drive door are inserted between the drive bracket and the drive cage.

NOTE: Be sure to fold down the drive door handle so that the front panel can be replaced on the chassis.

Installing the Hard-Drive Bracket (Mini Tower Chassis)



4. Connect the interface cable for the drive. See "Attaching Hard-Drive Cables (Mini Tower Chassis)."

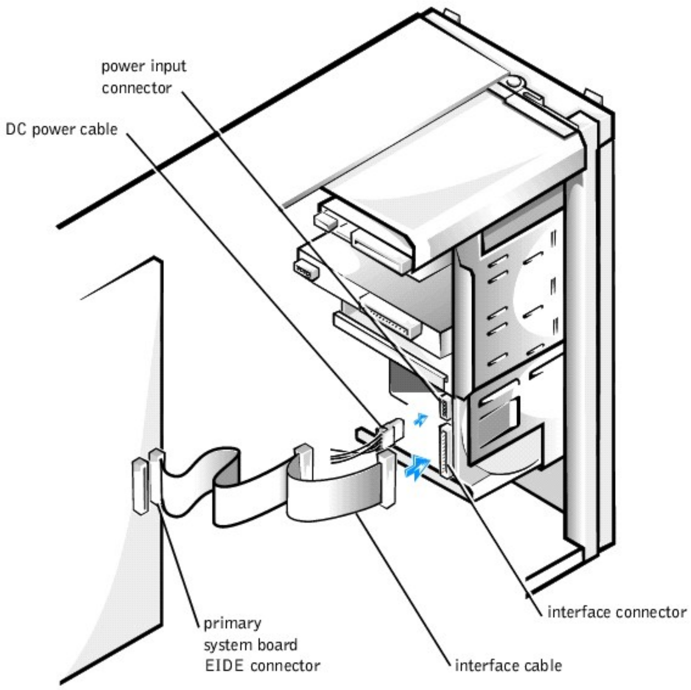
NOTICE: To avoid possible damage, you must match the colored strip on the interface cable with pin 1 on both the drive and system board connectors.

   a. If you are installing an EIDE device, ensure that the IDE interface cable is properly connected to the EIDE connector on the system board.

   b. If you are installing a SCSI device, ensure that the SCSI interface cable is properly connected to the interface connector on the SCSI controller board.

5. Connect a DC power cable to the power input connector on the back of the drive (see the following figure).

Attaching Hard-Drive Cables (Mini Tower Chassis)



6. Ensure that all cables are firmly connected. Fold cables out of the way to provide airflow for the fan and cooling vents.
7. Ensure that the control panel cable is firmly connected to the system board.

   The control panel contains the hard-drive activity indicator. To locate the control panel system board connector, see "System Board Components" or "Interior Service Label."

8. Replace the front panel.
9. Rotate the power supply back into position until the securing tab snaps into the release latch.
10. Replace the computer cover and restart the system.
11. Enter system setup, and update the drive settings.

    After you update the system settings, exit system setup and reboot the computer.

12. Partition and logically format the drive before proceeding to the next step.

    See the operating system's documentation for instructions.

13. Run the Dell Diagnostics to test the drive.
14. If the hard drive you installed is the primary drive, install the operating system on the drive.

    See the operating system's documentation for instructions.

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Expansion Cards

Dell Precision™ WorkStation 330 Systems Service Manual

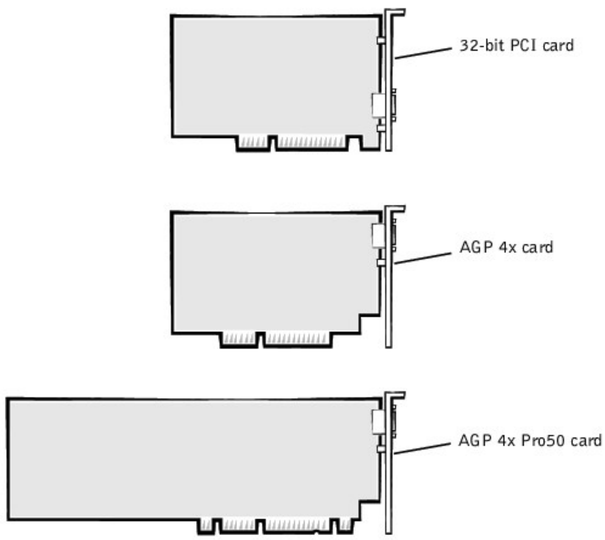
- [Overview](#)
- [Removing an Expansion Card](#)

Overview

The computer provides expansion slots for the following cards:

- Up to five 32-bit, 33-MHz PCI expansion cards.
- One 32-bit AGP card. The expansion slot supports AGP 4x or 2x Pro50 modes operating at 1.5 V.

Expansion Card Types



Removing an Expansion Card

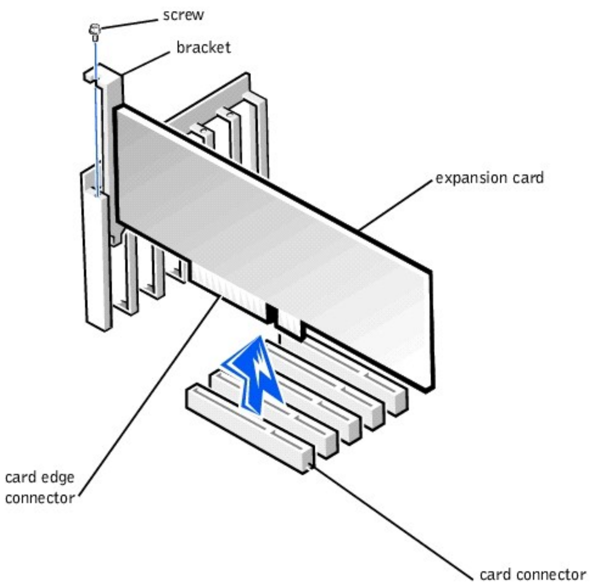
CAUTION: Before you perform this procedure, see "[Precautionary Measures](#)."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "[System Board Components](#)" or "[Interior Service Label](#)."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then [remove the computer cover](#).
2. If you have a mini tower chassis, lay the computer down on its right side.
3. If you have a mini tower chassis and you are removing an AGP card, [remove the AGP card brace](#).
4. If necessary, disconnect any cables connected to the card.
5. Remove the screw that secures the expansion card bracket to the chassis (see the following figure).

   Save the screw to use when installing the expansion card or filler bracket later in this procedure.
6. Grasp the card by its top corners, and ease it out of its connector.

Removing an Expansion Card



NOTICE: An AGP Pro50 card may use multiple screws on its bracket. Install all screws on the expansion card's bracket.

7. If you are removing the card permanently, install a filler bracket in the empty card-slot opening, using the screw you removed in step 5.

   If you need a filler bracket, contact Dell and order part number 81808. See the *User's Guide* for information on contacting Dell.

   NOTE: Installing filler brackets over empty card-slot openings is necessary to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of your computer.

8. If you removed the AGP brace, replace it.
9. If you have a mini tower chassis, stand the computer upright.
10. Replace the computer cover and restart the system.
11. If you removed a sound card, perform the following steps:
    a. Enter system setup, select **Integrated Devices** and change the setting for **Sound** to **On**.
    b. Connect external audio devices to the audio connectors on the system back panel.
12. If you removed an add-in NIC, perform the following steps:
    a. Enter system setup, select **Integrated Devices** and change the setting for **Network Interface Card** to **On**.
    b. Connect the network cable to the integrated NIC connector on the system back panel.

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Expansion-Card Guide

Dell Precision™ WorkStation 330 Systems Service Manual

- [Desktop Chassis](#)
- [Mini Tower Chassis](#)

Desktop Chassis

- [Removing the expansion-card guide](#)
- [Replacing the expansion-card guide](#)

Removing the Expansion-Card Guide (Desktop Chassis)

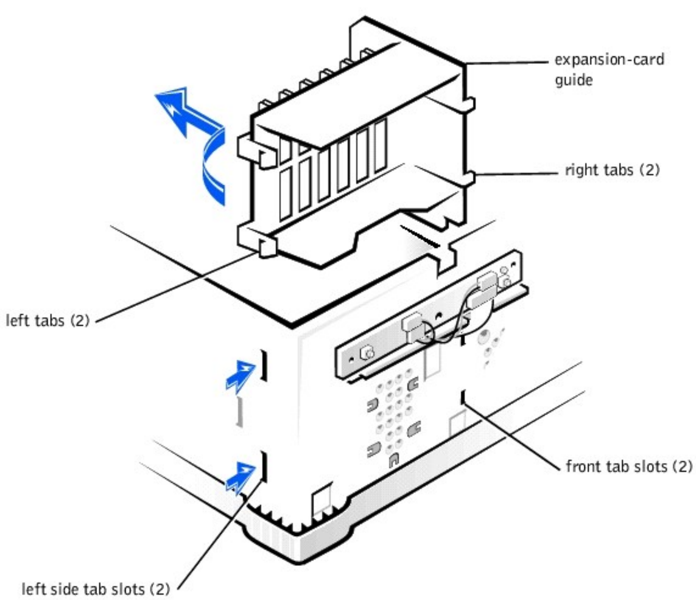
⚠ **CAUTION: Before you perform this procedure, see "[Precautionary Measures](#)."**

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "[System Board Components](#)" or "[Interior Service Label](#)."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then [remove the computer cover](#).
2. [Remove the hard-drive bracket](#).
3. Remove all expansion cards.
4. Remove the expansion-card guide:
   a. Face the computer from the front.
   b. From the outside of the chassis, press in the two tabs on the left side of the card guide.

      This will release the left card-guide tabs from the chassis.
   c. Rotate the released side of the card guide away from the front chassis wall.
   d. With the released side of the card guide away from the chassis wall, pull the card guide back away from the chassis (see the following figure).

Removing the Expansion-Card Guide (Desktop Chassis)



Replacing the Expansion-Card Guide (Desktop Chassis)

Insert the two right tabs in the slots in the front chassis wall. Then, rotate the card guide toward the front chassis wall until the two left tabs snap into the slots in the left side chassis wall. See "Removing the Expansion-Card Guide (Desktop Chassis)."

Mini Tower Chassis

- Removing the expansion-card guide
- Replacing the expansion-card guide

Removing the Expansion-Card Guide (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Lay the computer down on its right side.
3. Remove the AGP card brace.
4. Remove all expansion cards.
5. Disconnect the fan power cable from its connector on the system board (FAN2). To locate this connector, see "System Board Components" or "Interior Service Label."
6. Remove the expansion-card guide:

   NOTE: The I/O cooling fan is mounted on the expansion-card guide.

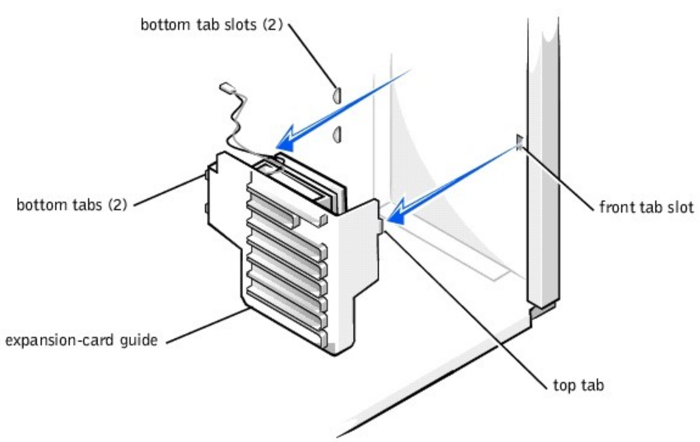
   a. From the outside of the chassis, press in the tab on the top of the card guide.

      This will release the card-guide tab from the chassis.

   b. Rotate the released side of the card guide away from the front chassis wall.

   c. With the released side of the card guide away from the chassis wall, pull the card guide up away from the chassis (see the following figure).

Removing the Expansion-Card Guide (Mini Tower Chassis)



Replacing the Expansion-Card Guide (Mini Tower Chassis)

Insert the two bottom tabs in the slots in the chassis wall. Then, rotate the card guide toward the front chassis wall until the top tab snaps into the slot in the front chassis wall. See "Removing the Expansion-Card Guide (Mini Tower Chassis)."

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Front Panel (Mini Tower Chassis Only)

Dell Precision™ WorkStation 330 Systems Service Manual

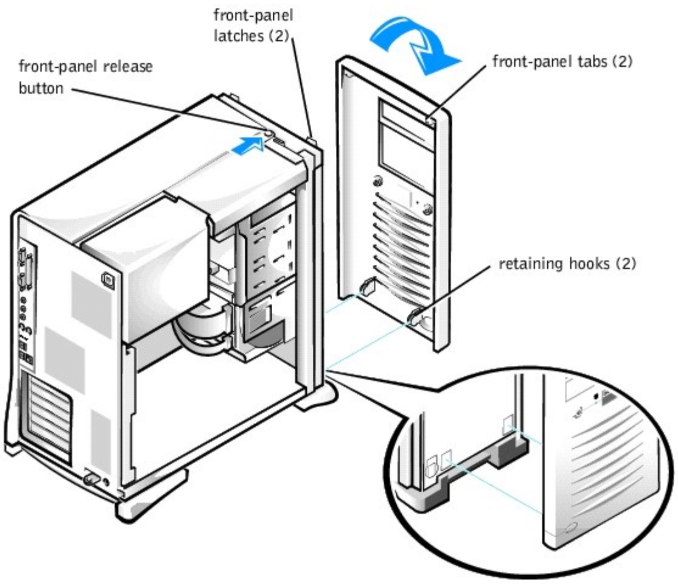
- Removing the Front Panel
- Replacing the Front Panel

Removing the Front Panel

CAUTION: Before you perform this procedure, see "Precautionary Measures."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Release the front panel by pressing the green front-panel release button marked with the icon (see the following figure).

Removing the Front Panel (Mini Tower Chassis)



3. While pressing the front-panel release button, rotate the top of the panel outward, away from the chassis.
4. Lift the panel away from the chassis.

Replacing the Front Panel

Fit the two front-panel retaining hooks into the recessed slots at the bottom of the chassis. See "Removing the Front Panel (Mini Tower Chassis)." Then rotate the top of the panel toward the chassis until the front-panel latches snap into the tabs on the front panel.

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Front-Panel Buttons

Dell Precision™ WorkStation 330 Systems Service Manual

Desktop Chassis

Removing Front-Panel Buttons (Desktop Chassis)

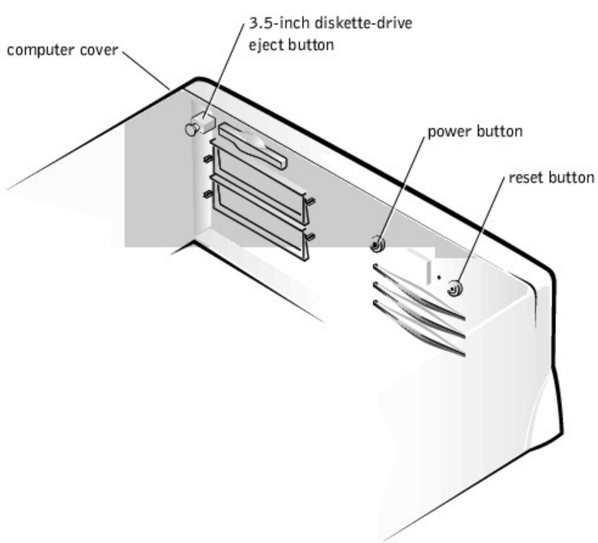
CAUTION: Before you perform this procedure, see "Precautionary Measures."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Lay the computer cover upside down, with the back of the cover facing you.
3. Remove the front-panel buttons:
   - *To remove the 3.5-inch diskette-drive eject button*, pull gently on the button until its clip disengages the front panel of the computer cover. Lift the button up to free it from the cover.
   - *To remove the power button*, use a small screwdriver to push in the two plastic clips that secure the button to the computer cover.

     When the clips disengage, the button comes free from the front panel of the computer cover.
   - *To remove the reset button*, use a small screwdriver to push in the three plastic clips that secure the button to the computer cover.

     When the clips disengage, the button comes free from the front panel of the computer cover.

Removing Front-Panel Buttons (Desktop Chassis)



Replacing Front-Panel Buttons (Desktop Chassis)

Replace the front-panel buttons.

- *To replace the 3.5-inch diskette-drive eject button*, rotate the button into the hole in the front panel of the computer cover and push gently on the button until

its clip secures it to the cover.

- *To replace the power button*, insert the button into the hole in the front panel of the computer cover so that the button's clips secure it to the cover.
- *To replace the reset button*, insert the button into the hole in the front panel of the computer cover so that the button's clips secure it to the cover.

Mini Tower Chassis

- Removing front-panel buttons
- Replacing front-panel buttons

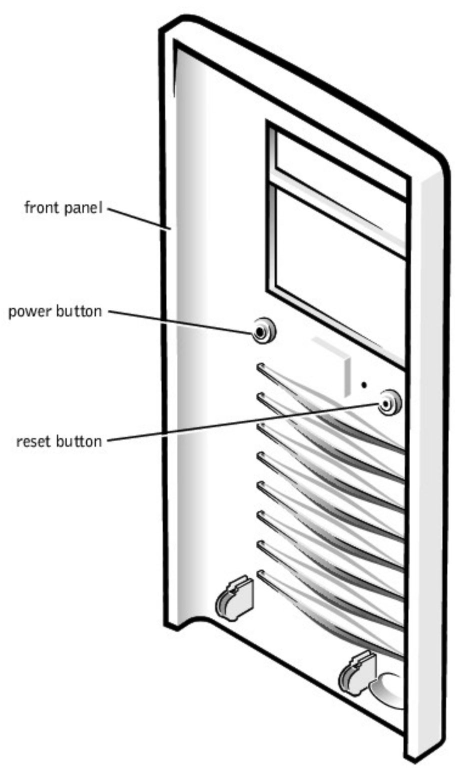
Removing Front-Panel Buttons (Mini Tower Chassis)

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the front panel.
3. Lay the front panel down, with the inside of the panel facing up.
4. Remove the front-panel buttons:
   - *To remove the power button*, use a small screwdriver to push in the two plastic clips that secure the button to the computer cover.

     When these clips are released, the button comes free from the front panel.
   - *To remove the reset button*, use a small screwdriver to push in the three plastic clips that secure the button to the computer cover.

     When these clips are released, the button comes free from the front panel.

Removing Front-Panel Buttons (Mini Tower Chassis)



Replacing Front-Panel Buttons (Mini Tower Chassis)

Replace the front-panel buttons.

- *To replace the power button*, insert the button into the hole in the front panel of the computer cover so that the button's clips secure it to the cover.
- *To replace the reset button*, insert the button into the hole in the front panel of the computer cover so that the button's clips secure it to the cover.

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Front-Panel Inserts

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- Desktop Chassis
- Mini Tower Chassis

Desktop Chassis

- Removing front-panel inserts
- Replacing front-panel inserts

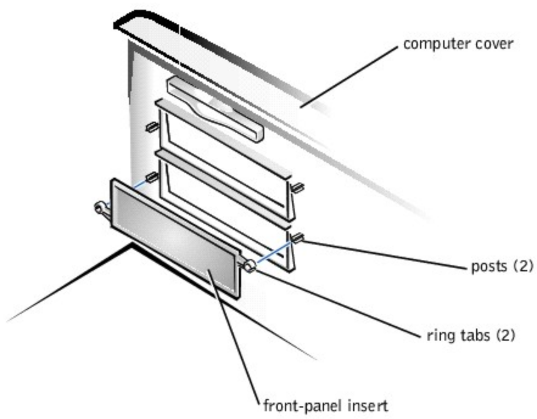
Removing Front-Panel Inserts (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Lay the computer cover upside down, with the front panel facing you.
3. Remove the front-panel insert for the chassis drive bay you want to use.

   Use your thumbs to press the sides of the insert until it snaps free of the front panel (see the following figure).

Removing Front-Panel Inserts (Desktop Chassis)



Replacing Front-Panel Inserts (Desktop Chassis)

Position the two ring-tabs over the posts on the inside of the bay opening, and then press the ring tabs over the posts. See "Removing Front-Panel Inserts (Desktop Chassis)."

Mini Tower Chassis

- Removing front-panel inserts
- Replacing front-panel inserts

Removing Front-Panel Inserts (Mini Tower Chassis)

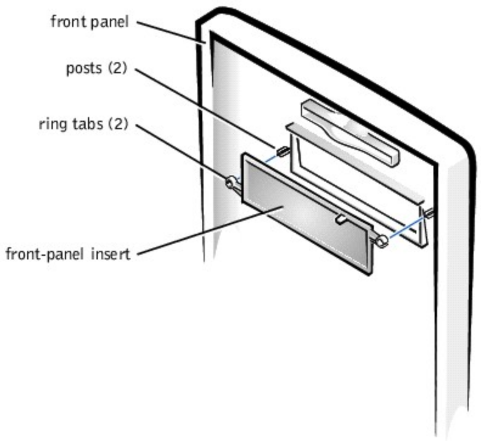
CAUTION: Before you perform this procedure, see "Precautionary Measures."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.

2. Remove the front panel.
3. Hold the front panel with the front facing you.
4. Remove the front-panel insert for the chassis drive bay you want to use.

   Use your thumbs to press the sides of the insert until it snaps free of the front panel (see the following figure).

Removing Front-Panel Inserts (Mini Tower Chassis)



Replacing Front-Panel Inserts (Mini Tower Chassis)

Position the two ring-tabs over the posts on the inside of the bay opening, and then press the ring tabs over the posts. See "Removing Front-Panel Inserts (Mini Tower Chassis)."

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I/O Cooling Fan (Mini Tower Chassis Only)

Dell Precision™ WorkStation 330 Systems Service Manual

Removing the I/O Cooling Fan

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

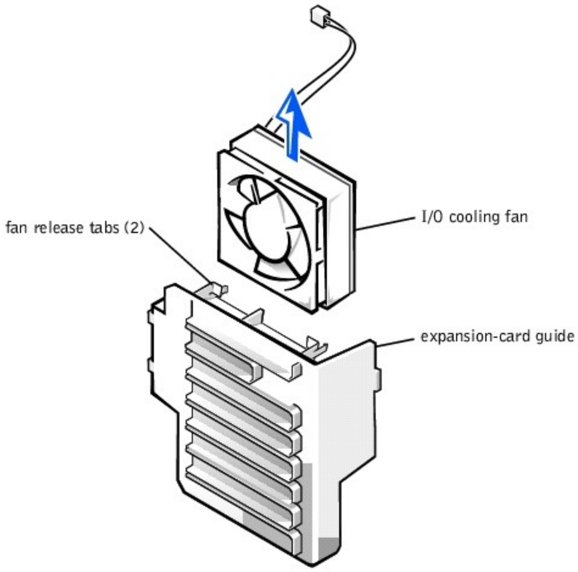
1. Disconnect the fan power cable from its connector on the system board (FAN2). To locate this connector, see "System Board Components" or "Interior Service Label."

2. Remove the expansion-card guide.

   NOTE: The I/O cooling fan is mounted on the expansion-card guide.

3. Press the fan release tabs outward on the expansion-card guide and slide the fan out of the card guide (see the following figure).

Removing the I/O Cooling Fan (Mini Tower Chassis)



Replacing the I/O Cooling Fan

NOTICE: Ensure that the fan is properly installed on the guide bracket. When the fan is properly installed, the fan's manufacturer label should face the expansion-card guide, and the fan's power cable should extend toward the system board. Airflow for the fan should enter the chassis through the front panel and be moved by the fan to the chassis interior.

Insert the bottom of the cooling fan into the clips on the card guide. Then, press the top of the fan toward the card guide until the tabs on the card guide grasp the fan. See "Removing the I/O Cooling Fan (Mini Tower Chassis)."

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Inside Your Computer

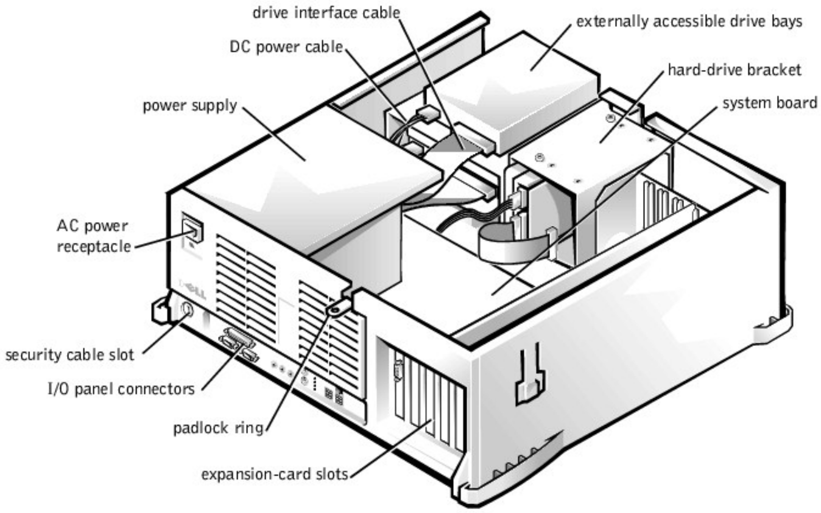
Dell Precision™ WorkStation 330 Systems Service Manual

- Chassis Interior

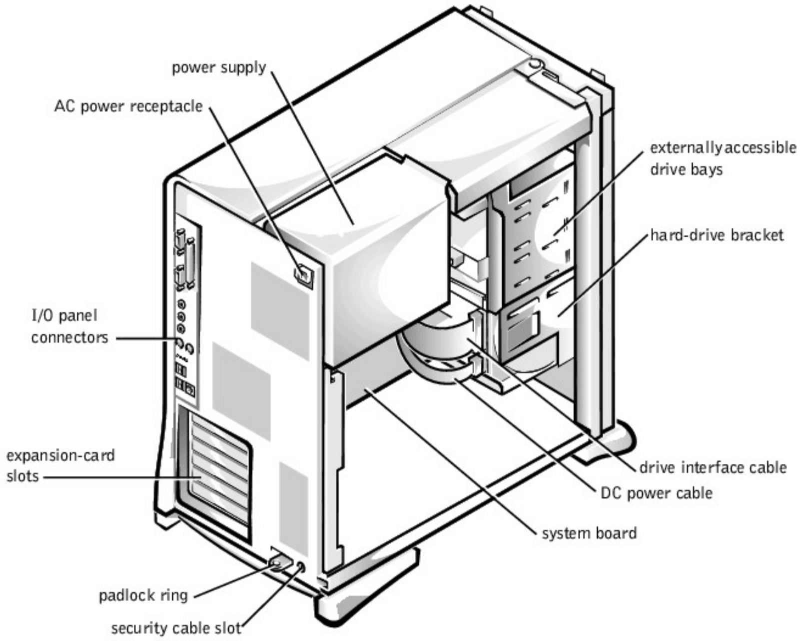
Chassis Interior

The following figures show the desktop and mini tower chassis with their covers removed.

Desktop Chassis Interior



Mini Tower Chassis Interior



NOTE: Before you remove the cover from the mini tower chassis, you must first slide the outer padlock ring to the left to unlock the cover release mechanism. See "Cover Release Mechanism (Mini Tower Chassis)."

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System Memory

Dell Precision™ WorkStation 330 Systems Service Manual

- [Removing a Memory Module](#)
- [Replacing a Memory Module](#)

Removing a Memory Module

CAUTION: Before you perform this procedure, see "[Precautionary Measures](#)."

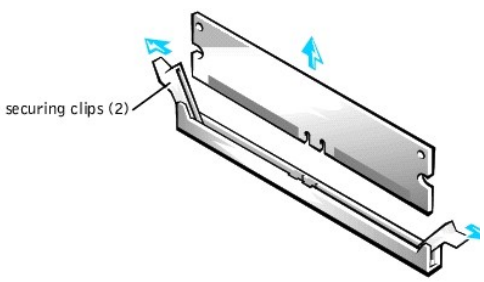
CAUTION: RIMMs can get very hot during system operation. Be sure that the RIMMs have had sufficient time to cool before you touch them.

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "[System Board Components](#)" or "[Interior Service Label](#)."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then [remove the computer cover](#).
2. If you have a mini tower chassis, lay the computer down on its right side.
3. [Rotate the power supply](#) away from the system board.
4. Remove the memory modules (RIMMs or CRIMMs):
   a. Press the securing clips at each end of the socket outward simultaneously until the module pops out slightly from the socket (see the following figure).
   b. Lift the module away from the socket.

NOTE: If you remove a module (RIMM or CRIMM), you must install another module in the empty socket before turning on the computer.

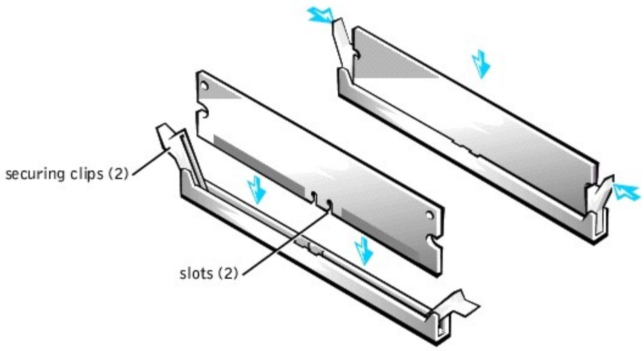
Removing a Memory Module



Replacing a Memory Module

1. Install the memory module:
   a. Press the securing clips at each end of the socket outward until they snap open (see the following figure).
   b. Align the slots on the bottom of the memory module with the two ridges inside the socket.
   c. Press the memory module straight down into the socket until the securing clips snap into place at the ends of the module.

Installing a Memory Module



2. Rotate the power supply back into position until the securing tab snaps into the release latch.

3. If you have a mini tower chassis, stand the computer upright.

4. Replace the computer cover and restart the system.

   The system detects that the new memory does not match the existing system configuration information and generates the following message:

```
The amount of system memory has changed.
Strike the F1 key to continue, F2 to run the setup utility
```

5. Enter system setup, and check the value for **System Memory**. The system should have already changed the value of **System Memory** to reflect the newly installed memory. If the new total is correct, skip to step 7.

6. If the memory total is incorrect, repeat step 1 and step 3 of "Removing a Memory Module." Check the installed modules to ensure that they are seated properly in their sockets. Then repeat step 2 through step 5 of this procedure.

7. When the **System Memory** total is correct, exit system setup.

8. Run the Dell Diagnostics to verify that the memory modules are operating properly.

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Microprocessor

Dell Precision™ WorkStation 330 Systems Service Manual

- [Removing the Microprocessor](#)
- [Replacing the Microprocessor](#)

Removing the Microprocessor

CAUTION: Before you perform this procedure, see "[Precautionary Measures](#)."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "[System Board Components](#)" or "[Interior Service Label](#)."

1. [Remove the airflow shroud](#).

2. Remove the microprocessor heat sink:

   a. For each of the metal clips that secure the heat sink to the microprocessor, press down on the clip's latch to release it from the heat-sink retention base. Then lift the clip away from the heat sink (see the following figure).

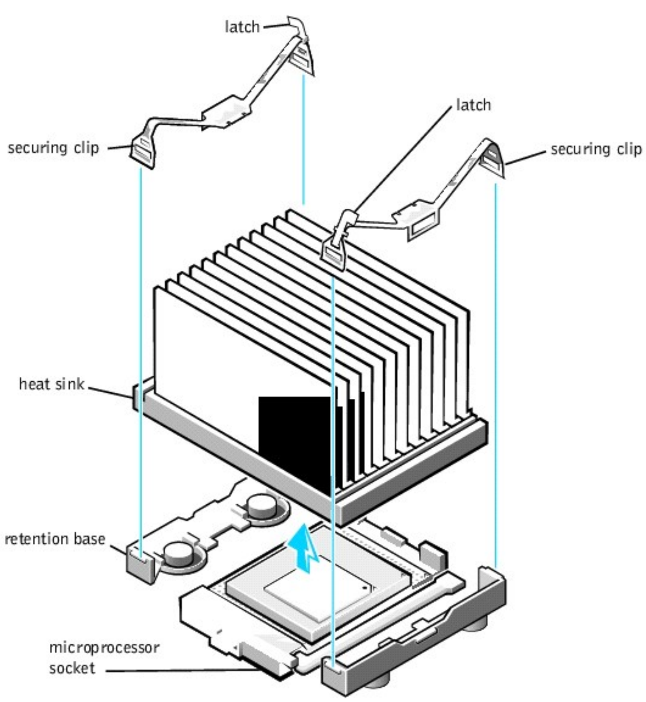
   b. Lift the heat sink away from the microprocessor.

   NOTE: If you are you are installing a microprocessor upgrade kit from Dell, discard the original microprocessor heat sink and securing clips. Your microprocessor upgrade kit should include a replacement microprocessor heat sink and two replacement securing clips. If you are *not* installing a microprocessor upgrade kit from Dell, reuse the original heat sink and securing clips when replacing the microprocessor.

NOTICE: The bottom of the heat sink is coated with thermal grease that conducts heat from the microprocessor to the heat sink. Some of this grease will remain on the microprocessor when you remove the heat sink. You can remove and replace the heat sink up to approximately 20 times before the thermal grease is depleted to the point that performance is affected.

NOTICE: While you are replacing the the microprocessor, lay the heat sink down with the thermal grease facing upward. Do not lay the heat sink down with the thermal grease touching the work surface.

Removing the Microprocessor Heat Sink

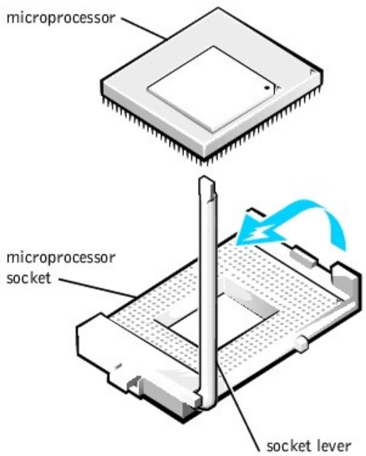


3. Remove the microprocessor from its connector.

   Your microprocessor uses a zero insertion force (ZIF) socket with a lever-type handle that secures or releases the microprocessor.

   To remove the microprocessor, pull the socket lever straight up until the microprocessor is released. Then remove the microprocessor from the socket (see the following figure).

Removing the Microprocessor



Replacing the Microprocessor

1. Install the new microprocessor in the socket:

   a. Ensure that the lever on the microprocessor socket is fully extended to the release position.

NOTICE: When you place the microprocessor in the socket, ensure that the microprocessor aligns properly with the socket. You must position the microprocessor correctly in the socket to avoid damage.

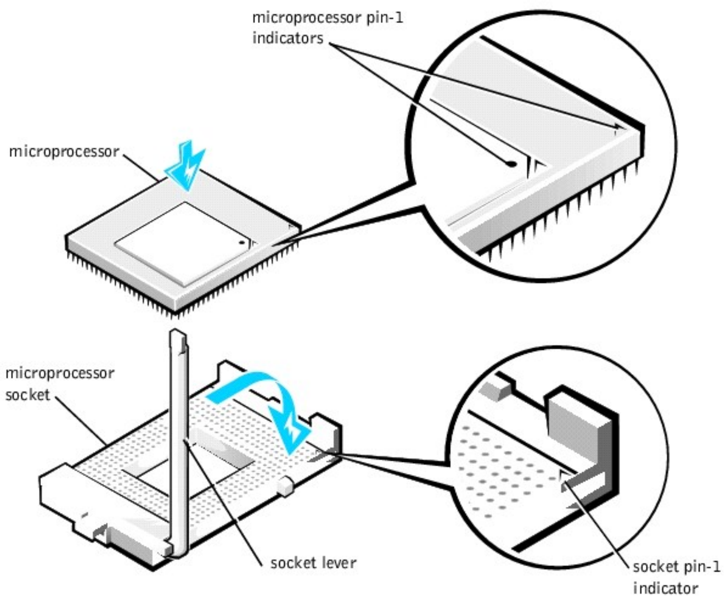
   b. Align pin 1 of the new microprocessor with pin 1 of the socket.

   NOTE: Pin 1 of the microprocessor is indicated by a small dot or a triangle in one corner of the microprocessor. Pin 1 of the socket is indicated by a small triangle in one corner of the socket. See "Replacing the Microprocessor."

   c. Carefully set the microprocessor in the socket and press it down lightly to seat it.

   d. Rotate the socket lever back toward the socket until it snaps into place, securing the microprocessor.

Replacing the Microprocessor



2. Install the microprocessor heat sink:

NOTICE: If you are you are installing a microprocessor upgrade kit from Dell, remove the film covering the thermal grease on the bottom of the replacement heat sink before installing it.

NOTICE: If you are *not* installing a microprocessor upgrade kit from Dell, reuse the original heat sink and securing clips when replacing the microprocessor. There should be enough thermal grease remaining on the bottom of the het sink to provide adequate thermal conductivity from the microprocessor.

   a. Lower the heat sink to the microprocessor so that the heat sink fits in the heat sink retention base.

   b. For each of the replacement metal clips that secure the heat sink to the microprocessor, fit the end of the clip that does not have the latch to the heat sink retention base. Then, press down on the clip's latch to secure the clip to the heat sink retention base (see "Removing the Microprocessor Heat Sink").

3. Replace the airflow shroud.

4. Rotate the power supply back into position until the securing tab snaps into the release latch.

5. Replace the computer cover and restart the system.

6. Enter system setup, and confirm that the top line in the **System Data** area correctly identifies the new microprocessor. Also, confirm that the values under the **CPU Information** menu are correct for the new microprocessor.

7. Exit system setup, and then run the Dell Diagnostics to verify that the new microprocessor is operating properly.

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Microprocessor Cooling Fan

Dell Precision™ WorkStation 330 Systems Service Manual

- Desktop Chassis
- Mini Tower Chassis

Desktop Chassis

- Removing the microprocessor cooling fan
- Replacing the microprocessor cooling fan

Removing the Microprocessor Cooling Fan (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.

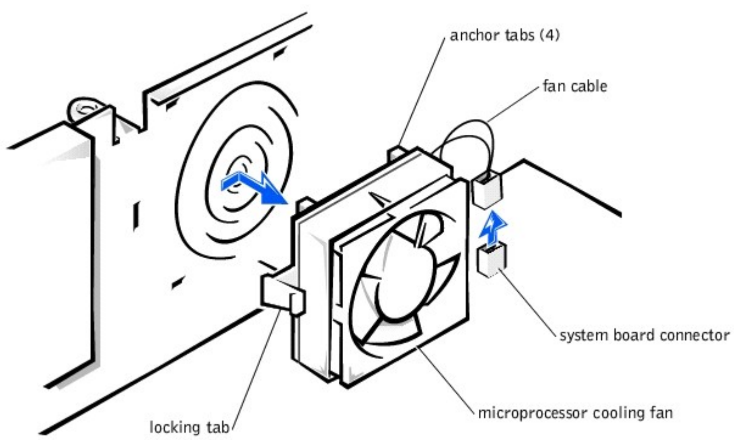
2. Rotate the power supply away from the system board.

3. Remove the airflow shroud.

4. Disconnect the fan power cable from its connector on the system board (FAN). To locate this connector, see "System Board Components" or "Interior Service Label."

5. Gently pull the plastic locking tab back, and push the fan downward to disengage the four anchor tabs holding the fan to the back chassis wall.

Removing the Microprocessor Cooling Fan (Desktop Chassis)



6. Lift the fan out of the chassis.

Replacing the Microprocessor Cooling Fan (Desktop Chassis)

To replace the microprocessor cooling fan, perform the removal procedure in reverse.

Mini Tower Chassis

- Removing the microprocessor cooling fan

- Replacing the microprocessor cooling fan

Removing the Microprocessor Cooling Fan (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.

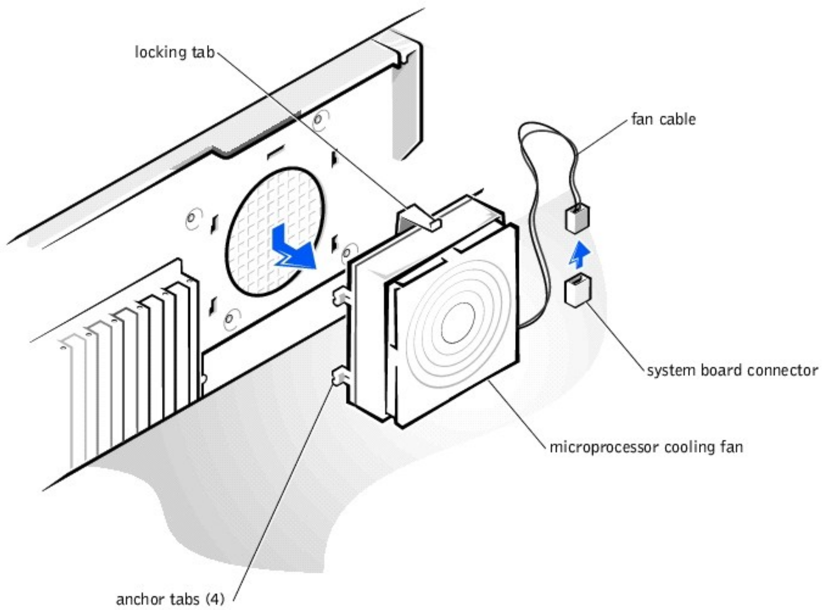
2. Rotate the power supply away from the system board.

3. Remove the airflow shroud.

4. Disconnect the fan power cable from its connector on the system board (FAN). To locate this connector, see "System Board Components" or "Interior Service Label."

5. Gently pull the plastic locking tab back, and push the fan toward the right side of the chassis to disengage the four anchor tabs holding the fan to the back chassis wall.

Removing the Microprocessor Cooling Fan (Mini Tower Chassis)



6. Lift the fan out of the chassis.

Replacing the Microprocessor Cooling Fan (Mini Tower Chassis)

To replace the microprocessor cooling fan, perform the removal procedure in reverse.

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Microprocessor Airflow Shroud

Dell Precision™ WorkStation 330 Systems Service Manual

- Desktop Chassis
- Mini Tower Chassis

Desktop Chassis

- Removing the microprocessor airflow shroud
- Replacing the microprocessor airflow shroud

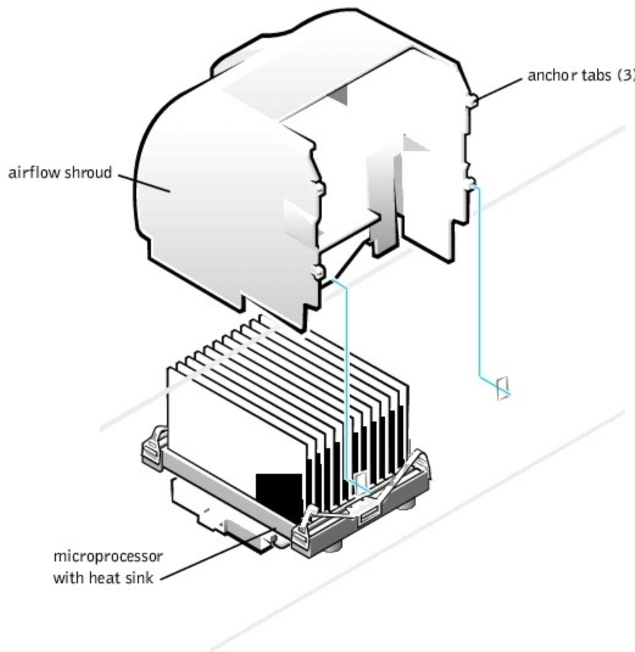
Removing the Microprocessor Airflow Shroud (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Rotate the power supply away from the system board.
3. Remove the airflow shroud by lifting the shroud up until the anchor tabs disengage from the chassis frame (see the following figure).
4. Lift the airflow shroud out of the chassis.

Removing the Airflow Shroud (Desktop Chassis)



Replacing the Microprocessor Airflow Shroud (Desktop Chassis)

To replace the microprocessor airflow shroud, perform the removal procedure in reverse.

Mini Tower Chassis

- Removing the microprocessor airflow shroud
- Replacing the microprocessor airflow shroud

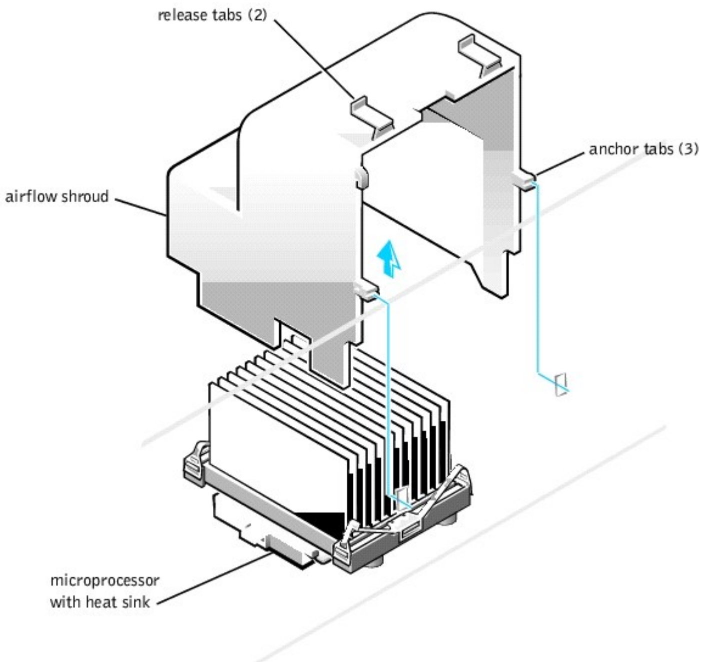
Removing the Microprocessor Airflow Shroud (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Rotate the power supply away from the system board.
3. Remove the airflow shroud by pulling back the release tabs on the top of the shroud and lifting the shroud up until the anchor tabs disengage from the chassis frame. See "Removing the Airflow Shroud (Mini Tower Chassis)." Then lift the airflow shroud out of the chassis.

Removing the Airflow Shroud (Mini Tower Chassis)



Replacing the Microprocessor Airflow Shroud (Mini Tower Chassis)

To replace the microprocessor airflow shroud, perform the removal procedure in reverse.

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Power Supply

Dell Precision™ WorkStation 330 Systems Service Manual

Desktop Chassis

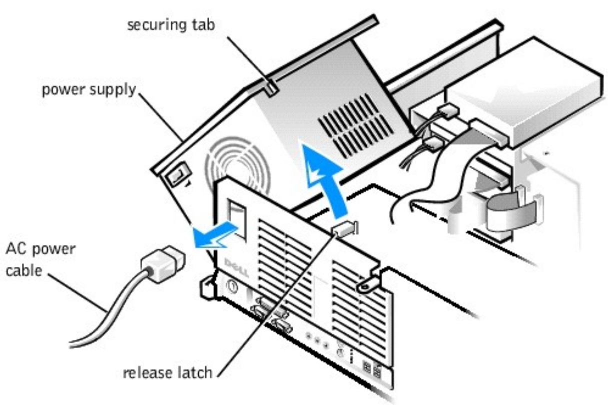
Rotating the Power Supply (Desktop Chassis)

To access some of the components on the system board, you may need to rotate the system power supply out of the way.

CAUTION: Before you perform this procedure, see "Precautionary Measures."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Ensure that the AC power cable is disconnected from the AC power receptacle on the back of the power supply. See "Rotating the Power Supply (Desktop Chassis)."
3. Free the power supply from the securing tab by pressing the tab labeled "RELEASE." Then rotate the power supply upward until it locks in its extended position.

Rotating the Power Supply (Desktop Chassis)



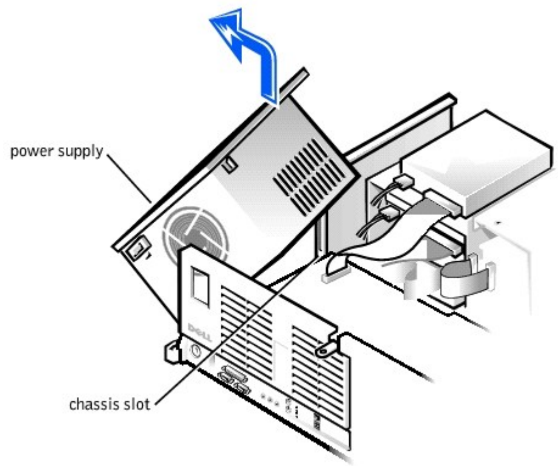
Removing the Power Supply (Desktop Chassis)

1. Rotate the power supply away from the system board.
2. Disconnect the power supply cables from all drives.
3. Disconnect the power supply cables from the system board.
4. Rotate the right side of the power supply up and away from the chassis.

   The right pivot pin rises up and exits the chassis slot.

5. Disengage the chassis pivot pin on the right rear of the power supply from the chassis socket.

Removing the Power Supply (Desktop Chassis)



6. Lift the power supply away from the chassis.

Replacing the Power Supply (Desktop Chassis)

1. Insert the chassis pivot pin on the right rear of the power supply into the chassis socket.

2. Rotate the right side of the power supply toward the chassis.

   The right pivot pin inserts into the chassis slot. See "Removing the Power Supply (Desktop Chassis)."

3. Press the right side of the power supply down until the pivot pin snaps into the chassis slot.

4. Connect the power supply cables to the system board.

5. Connect the power supply cables to all drives.

6. Rotate the power supply back into position until the securing tab snaps into the release latch.

7. Replace the computer cover and restart the system.

Mini Tower Chassis

- Rotating the power supply
- Removing the power supply
- Replacing the power supply

Rotating the Power Supply (Mini Tower Chassis)

To access some of the components on the system board, you may need to rotate the system power supply out of the way.

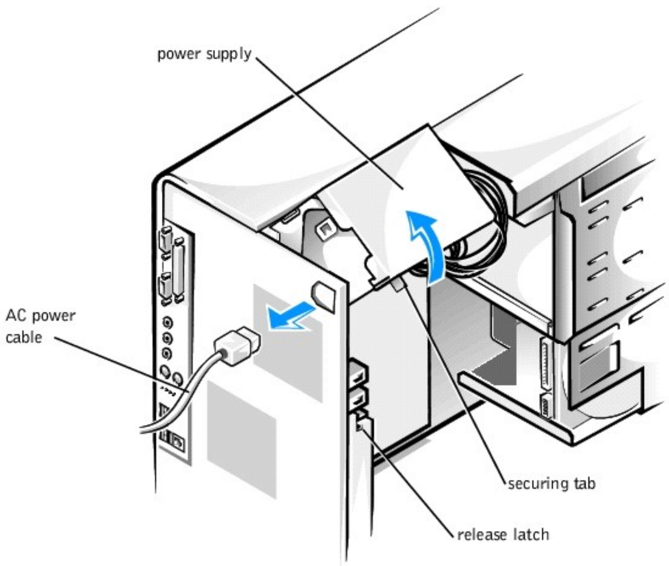
⚠ **CAUTION: Before you perform this procedure, see "Precautionary Measures."**

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.

2. Ensure that the AC power cable is disconnected from the AC power receptacle on the back of the power supply. See "Rotating the Power Supply (Mini Tower Chassis)."

3. Free the power supply from the securing tab by pressing the tab labeled "RELEASE." Then rotate the power supply upward until it locks in its extended position.

Rotating the Power Supply (Mini Tower Chassis)



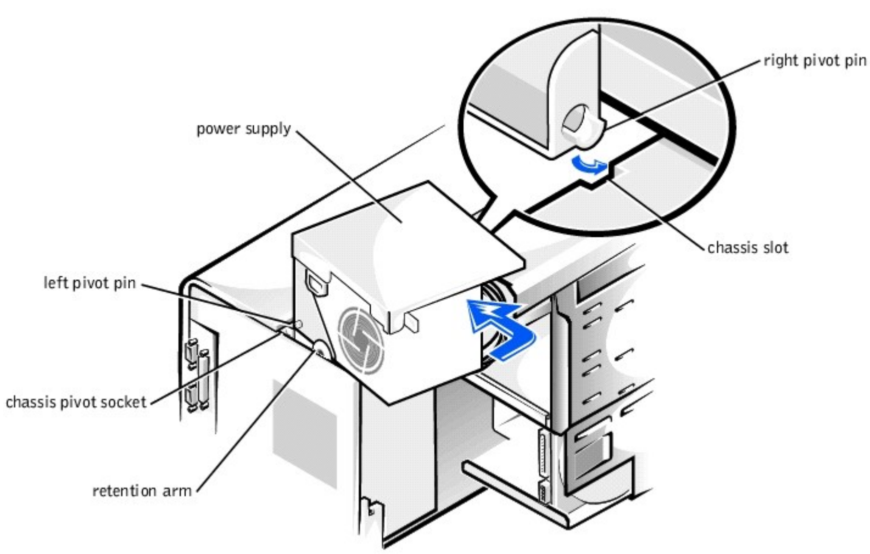
Removing the Power Supply (Mini Tower Chassis)

1. Rotate the power supply away from the system board.
2. Disconnect the power supply cables from all drives.
3. Disconnect the power supply cables from the system board.
4. Lift the front of the power supply up to its fully extended position.
5. Rotate the right side of the power supply up and away from the chassis.

   The pivot pin on the right rear of the power supply rises up and exits the chassis slot.

6. Disengage the retention arm pin on the left side of the power supply from the retention arm socket.
7. Disengage the pivot pin on the left rear of the power supply from the chassis socket.

Removing the Power Supply (Mini Tower Chassis)



8. Lift the power supply away from the chassis.

Replacing the Power Supply (Mini Tower Chassis)

1. Insert the pivot pin on the left rear of the power supply into the chassis socket.
2. Insert the retention arm pin on the left side of the power supply in the retention arm socket.
3. Rotate the right side of the power supply toward the chassis.

   The pivot pin on the right rear of the power supply inserts into the chassis slot. See "Removing the Power Supply (Mini Tower Chassis)."

4. Connect the power supply cables to the system board.
5. Connect the power supply cables to all drives.
6. Rotate the power supply back into position until the securing tab snaps into the release latch.
7. Replace the computer cover and restart the system.

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Speaker

Dell Precision™ WorkStation 330 Systems Service Manual

Desktop Chassis

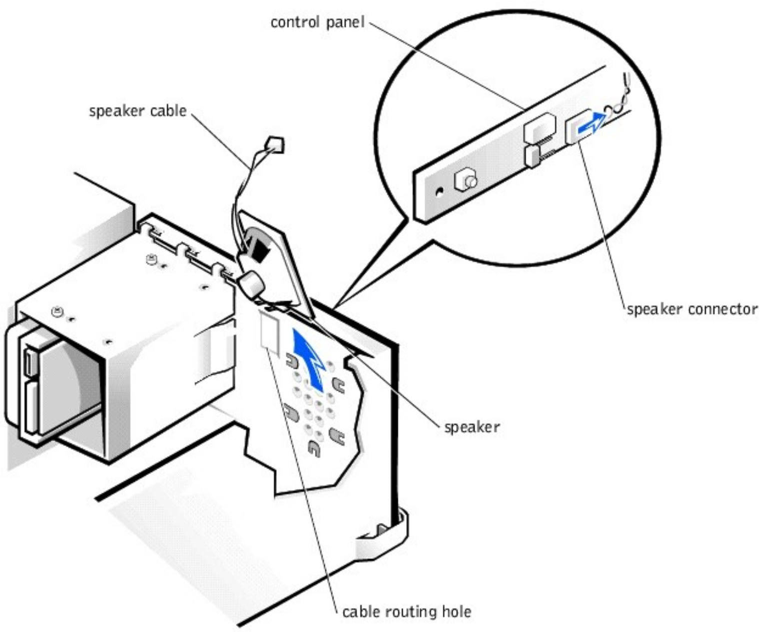
Removing the Speaker (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the hard-drive bracket.
3. Remove all expansion cards.
4. Remove the expansion-card guide.
5. Disconnect the speaker cable from the control-panel connector (SPKR). To locate this connector, see "Control Panel Components."
6. Feed the speaker cable through the routing hole in the front wall of the chassis (see the following figure).
7. From inside the chassis, lift the speaker up out of the retention tabs on the front chassis wall.
8. Lift the speaker and cable away from the chassis.

Removing the Speaker (Desktop Chassis)



Replacing the Speaker (Desktop Chassis)

NOTE: When mounting the speaker in the retention tabs in the front wall of the chassis, ensure that the speaker cable is oriented toward the top of the chassis.

To replace the speaker, perform the removal procedure in reverse.

Mini Tower Chassis

- Removing the speaker
- Replacing the speaker

Removing the Speaker (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

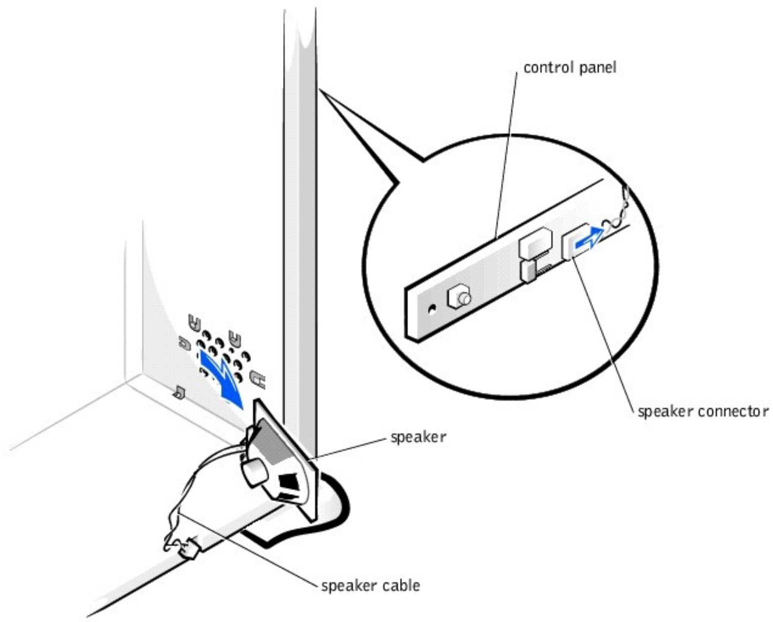
1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the front panel.
3. Remove the AGP card brace.
4. Remove all expansion cards.
5. Remove the expansion-card guide.
6. Disconnect the speaker cable from the control-panel connector (SPKR). To locate this connector, see "Control Panel Components."
7. Feed the speaker cable through the routing holes in the drive door and the front wall of the chassis.

   NOTE: You must open the drive door to feed the speaker cable through the cable routing holes. The speaker cable routes through an enlarged hole in the front chassis wall and through a hole in the drive door.

8. From inside the chassis, slide the speaker to the left side of the chassis to remove it from the retention tabs on the front chassis wall (see the following figure).

9. Lift the speaker and cable away from the chassis.

Removing the Speaker (Mini Tower Chassis)



Replacing the Speaker (Mini Tower Chassis)

NOTE: When mounting the speaker in the retention tabs in the front chassis wall, ensure that the speaker cable is oriented toward the right side of the chassis.

To replace the speaker, perform the removal procedure in reverse.

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Interior Service Label

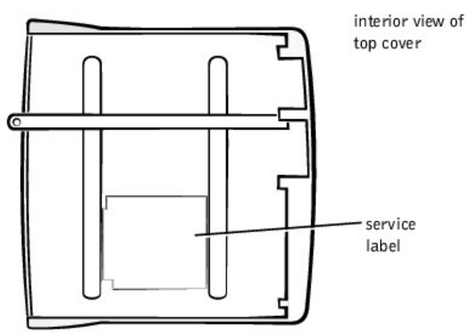
Dell Precision™ WorkStation 330 Systems Service Manual

- Service Label

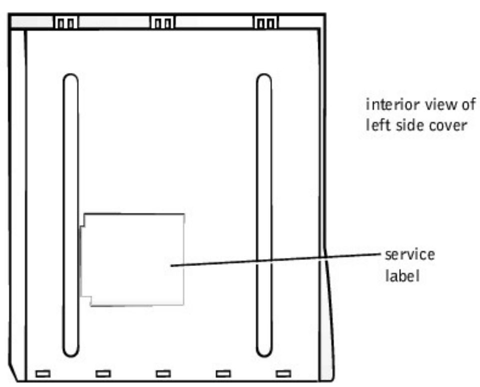
Service Label

A service label affixed to the inside of your computer cover indicates the location of system board components and connectors.

Desktop Chassis Service Label



Mini Tower Chassis Service Label



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System Board

Dell Precision™ WorkStation 330 Systems Service Manual

Removing the System Board

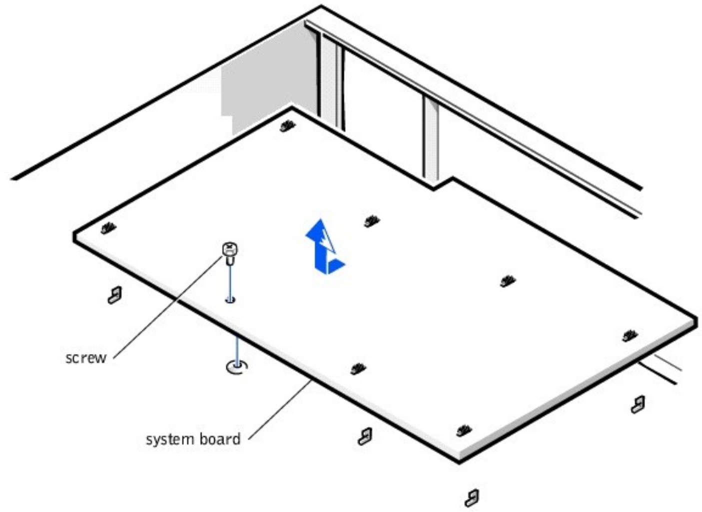
CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. If you have a mini tower chassis, lay the computer down on its right side.
3. Rotate the power supply away from the system board.
4. If you have a mini tower chassis, remove the AGP card brace.
5. Remove all expansion cards.
6. Remove all memory modules.
7. Remove the microprocessor airflow shroud.
8. Remove the microprocessor.
9. Remove the microprocessor cooling fan.
10. Disconnect all cables from the system board.
11. Slide all drive brackets partially out of the chassis.
12. Remove the screw that secures the system board to the bottom of the chassis (see the following figure).
13. Slide the system board toward the front of the chassis until it stops.

    This unlocks the system board.
14. Lift the front of the system board.
15. Lift the system board out of the chassis at an angle.

Removing the System Board



Replacing the System Board

1. Lower the system board into the chassis at an angle, with the I/O panel connectors lowered into the chassis.
2. Carefully push down evenly on both sides of the system board to engage the grounding clips onto their respective chassis tabs.

NOTICE: Do not twist the system board as you position it in the chassis.

3. Slide the system board toward the rear of the chassis until it stops.

   This locks the system board into position.

4. Replace the system board mounting screw.
5. Replace all components on the system board by performing step 3 through step 11 of "Removing the System Board" in reverse.
6. Set the jumpers on the new system board so that they are identical to those on the original board.
7. Replace the computer cover and restart the system.
8. Run system setup to ensure that your settings are correct and that all system board components are correctly identified.
9. Run the Dell Diagnostics to verify that the system is operating properly.

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System Board Components

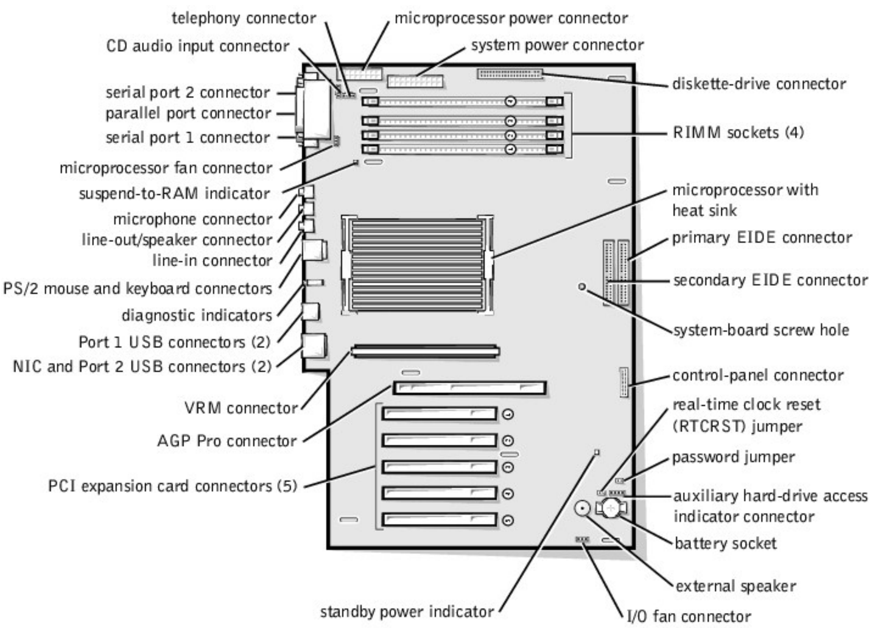
Dell Precision™ WorkStation 330 Systems Service Manual

- [Components](#)
- [Labels](#)
- [Jumpers](#)

Components

The following figure shows the system board and the location of its principal connectors and components.

System Board Components



Labels

The following table lists the labels for connectors and components on the system board, and briefly describes the function of each.

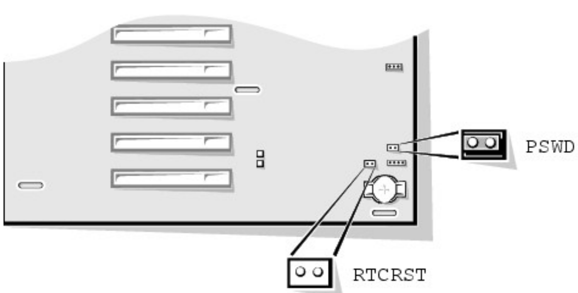
System-Board Labels	
Connector or Component	**Label**
AGP	AGP Pro connector
AUX_LED	Auxiliary hard-drive access indicator connector
BATTERY	Battery socket
CD_IN	CD audio input connector
CPU_POWER	Microprocessor power connector
DS1	Diagnostic indicators
DSKT	Diskette-drive connector
FAN	Microprocessor fan connector
FAN2	I/O fan connector
IDE1	Primary EIDE connector
IDE2	Secondary EIDE connector

KYBD	PS/2 keyboard connector
L_IN	Line-in connector
L_OUT	Line-out/speaker connector
MIC	Microphone connector
MICROPROCESSOR	Microprocessor with heat sink
MSE	PS/2 mouse connector
NIC	NIC connector
PANEL	Control-panel connector
PAR	Parallel port connector
PCI*n*	PCI expansion-card connector
POWER	System power connector
PSWD	Password jumper
RIMM_*n*	RIMM socket
RTCRST	Real-time clock reset jumper
SER	Serial port connectors
SPKR	External speaker
STANDBY_LED	Standby power indicator
STR	Suspend-to-RAM indicator
TAPI	Telephony connector
USB	Port 2 USB connectors (2)
USB2	Port 1 USB connectors (2)
VRM	VRM connector

Jumpers

The following figure shows the location of the jumpers on the system board.

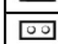
System Board Jumpers



NOTICE: Ensure that your system is turned off before you change a jumper setting. Otherwise, damage to your system or unpredictable results may occur.

To change a jumper setting, pull the plug off its pin(s) and carefully fit it down onto the pin(s) indicated.

The following table lists the system board jumpers and their settings.

System-Board Jumper Settings		
Jumper	**Setting**	**Description**
PSWD	 (default)	Password features are enabled.
		Password features are disabled.
RTCRST		Real-time clock reset. Can be used for troubleshooting.

jumpered *unjumpered*	

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Hard-Drive Thermal Sensor

Dell Precision™ WorkStation 330 Systems Service Manual

- Desktop Chassis
- Mini Tower Chassis

Desktop Chassis

- Removing the hard-drive thermal sensor
- Replacing the hard-drive thermal sensor

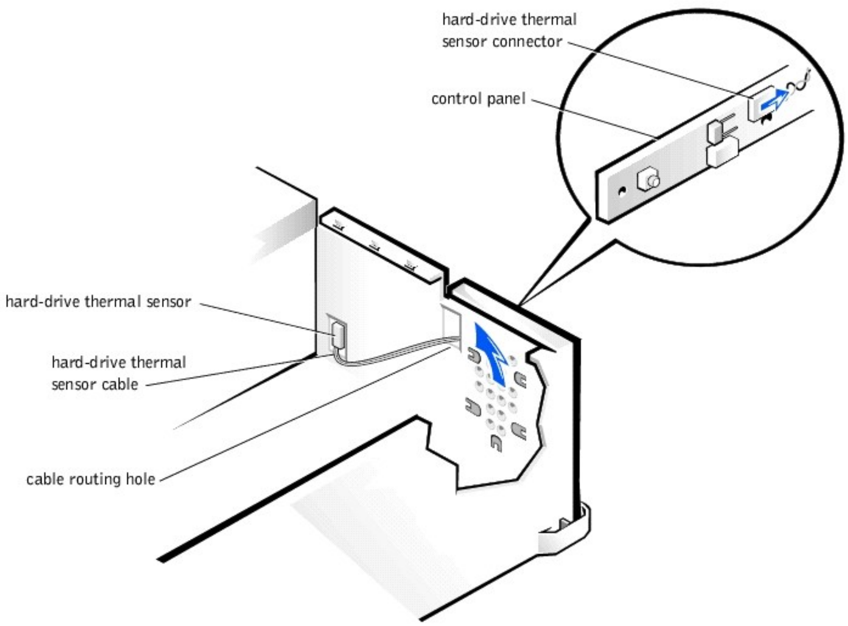
Removing the Hard-Drive Thermal Sensor (Desktop Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the hard-drive bracket.
3. Remove all expansion cards.
4. Remove the expansion-card guide.
5. Disconnect the hard-drive thermal sensor cable from the control-panel connector (THERMAL). To locate this connector, see "Control Panel Components."
6. Feed the thermal sensor cable through the routing hole in the front wall of the chassis (see the following figure).
7. Free the thermal sensor cable from the clip in the front wall of the chassis.
8. Remove the thermal sensor from the clip in the front wall of the chassis.
9. Lift the thermal sensor and sensor cable away from the chassis.

Removing the Hard-Drive Thermal Sensor (Desktop Chassis)



Replacing the Hard-Drive Thermal Sensor (Desktop Chassis)

NOTE: When mounting the hard-drive thermal sensor in the clip in the front wall of the chassis, ensure that the sensor cable is oriented toward the top of the chassis.

To replace the hard-drive thermal sensor, perform the removal procedure in reverse.

Mini Tower Chassis

- Removing the hard-drive thermal sensor
- Replacing the hard-drive thermal sensor

Removing the Hard-Drive Thermal Sensor (Mini Tower Chassis)

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Remove the front panel.
3. Remove the AGP card brace.
4. Remove all expansion cards.
5. Remove the expansion-card guide.
6. Remove the hard-drive bracket.
7. Disconnect the hard-drive thermal sensor cable from the control panel connector (THERMAL). To locate this connector, see "Control Panel Components."
8. Feed the thermal sensor cable through the routing holes in the drive door and the front wall of the chassis (see the following figure).

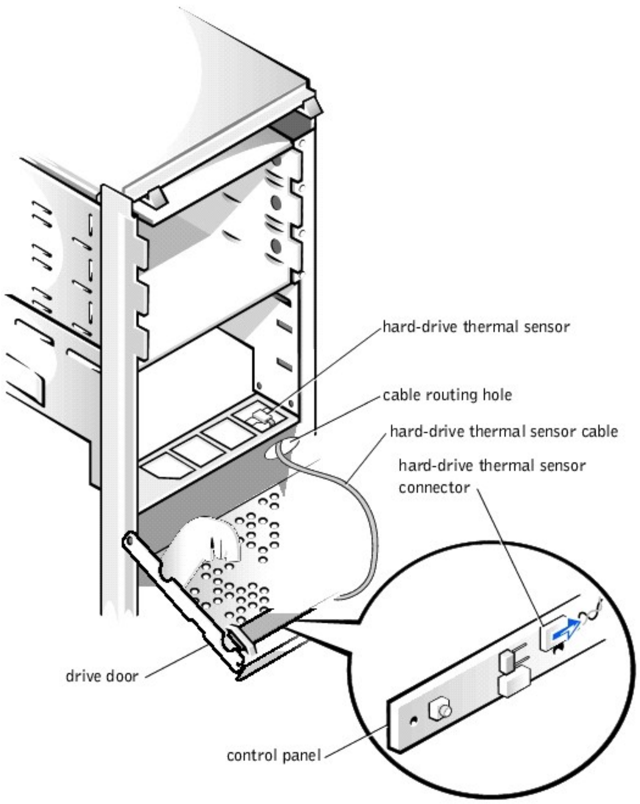
   NOTE: You must open the drive door to feed the thermal sensor cable through the cable routing holes. The sensor cable routes through an enlarged hole in the front chassis wall and through a hole in the drive door.

9. Remove the thermal sensor from the clip in the front wall of the chassis.

   The hard-drive thermal sensor is mounted on the chassis frame where the hard-drive bracket is installed.

10. Lift the thermal sensor and sensor cable away from the chassis.

Removing the Hard-Drive Thermal Sensor (Mini Tower Chassis)



Replacing the Hard-Drive Thermal Sensor (Mini Tower Chassis)

NOTE: When mounting the hard-drive thermal sensor in the clip in the front wall of the chassis, ensure that the sensor cable is oriented toward the front wall of the chassis.

To replace the hard-drive thermal sensor, perform the removal procedure in reverse.

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Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

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VRM

Dell Precision™ WorkStation 330 Systems Service Manual

- Overview
- Removing the VRM
- Replacing the VRM

Overview

The voltage regulator module (VRM) senses the microprocessor's voltage requirements and ensures that the correct voltage is maintained.

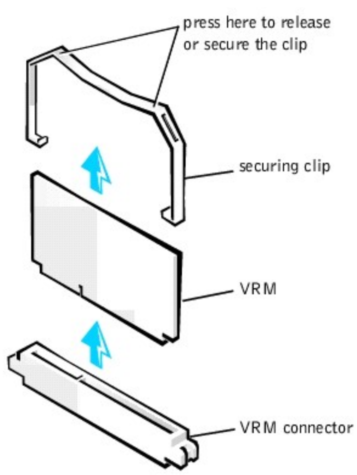
Removing the VRM

CAUTION: Before you perform this procedure, see "Precautionary Measures."

NOTICE: Before disconnecting a peripheral from the system or removing a component from the system board, verify that the standby power indicator on the system board has turned off. To locate this indicator, see "System Board Components" or "Interior Service Label."

1. Turn off the computer and peripherals, disconnect them from their electrical outlets, wait at least 5 seconds, and then remove the computer cover.
2. Rotate the power supply away from the system board.
3. Remove the VRM securing clip:
    a. Press down on the two raised points of the clip's top surface to release it from the VRM connector.
    b. Lift the clip away from the VRM (see the following figure).

Removing the VRM



4. Grasp the VRM by its top corners, and ease it out of its connector.

Replacing the VRM

1. Align the slot on the bottom of the new VRM with the ridge inside the connector.
2. Press the VRM straight into the connector.
3. Replace the VRM securing clip:

a. Lower the clip onto the VRM so that the top corners of the VRM go through the slots in the clip.

b. Press down on the two raised points of the clip's top surface to secure it to the VRM connector (see "Removing the VRM").

4. Rotate the power supply back into position until the securing tab snaps into the release latch.

5. Replace the computer cover and restart the system.

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